MINNEAPOLIS

CHEST X-RAY SURVEY

REPORT OF

THE MINNEAPOLIS COMMUNITY-WIDE CHEST X-RAY SURVEY

May 5 - August 25

1947

THE MINNEAPOLIS X-RAY SURVEY COMMITTEE

with the assistance of

U.S. PUBLIC HEALTH SERVICE

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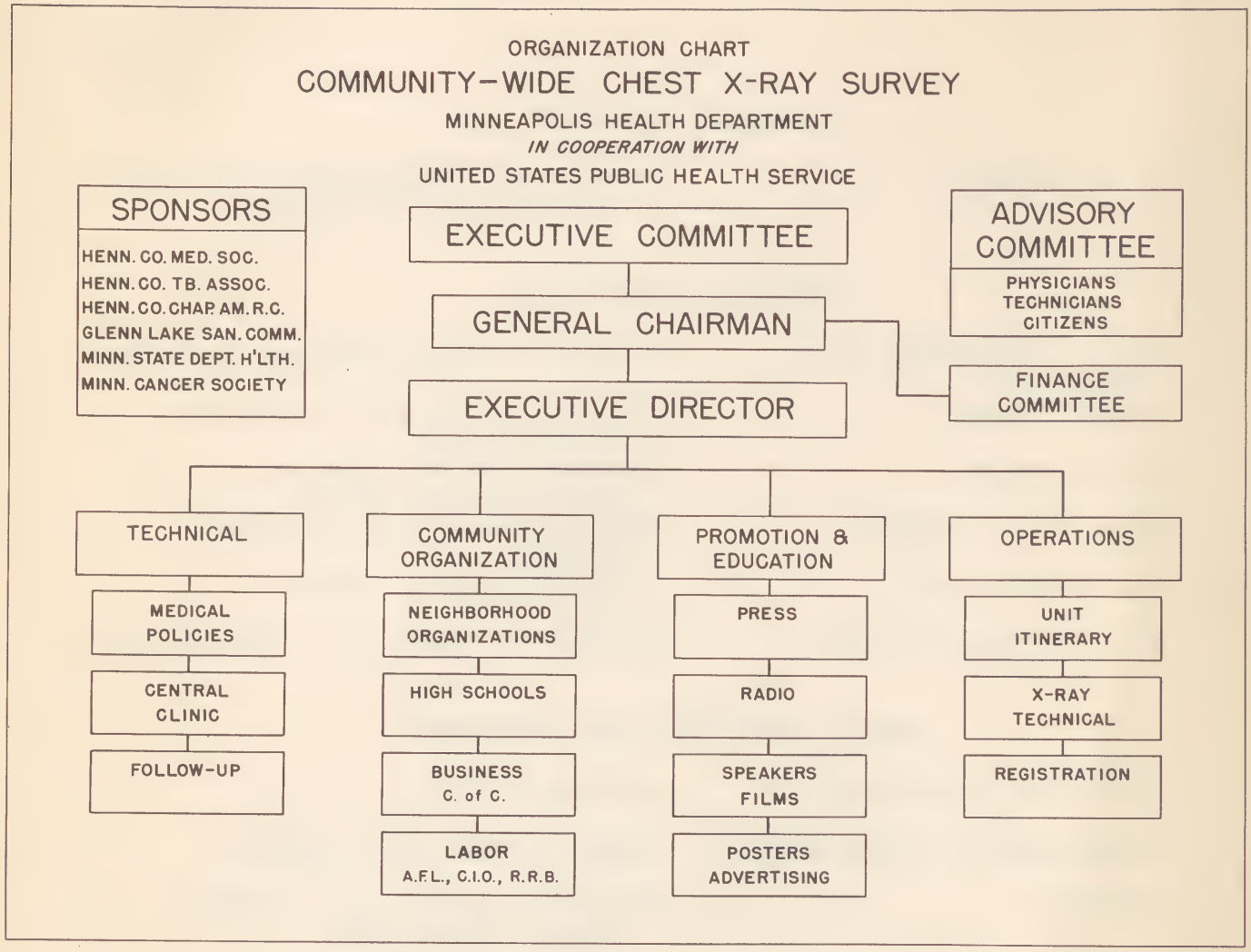
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CONTENTS

CHAPTER	PAGE
Foreword.	VI
I. Organizing the Survey	1
II. Medical Policies	4
III. The Community Organization	7
IV. Public Relations, Promotion & Publicity	12
V. Planning the Itinerary	19
VI. The Public Health Nursing Program	25
VII. The Record System & Survey Procedure	28
VIII. Finances	31
IX. Results of the Survey	33
In Prospect	44
Appendix: Record and Notification Forms	45

FOREWORD

(Excerpts from a speech presented by Dr. Charles E. Merkert, M.D., Chairman, Public Health Committee, Hennepin County Medical Society, before the Tuberculosis Committee of the Minnesota State Medical Association, September 20, 1946.)

Dr. Hill, Commissioner of Health of the City of Minneapolis, and I are here tonight to lay before you a plan for an aggressive attack against tuberculosis in the city of Minneapolis. This plan was initiated by the Hennepin County Medical Society a week ago. The Board of Directors of that Society has agreed to sponsor a mass chest X-ray survey in Minneapolis, to be conducted by the City Health Department with the cooperation of the Hennepin County Tuberculosis Association, the Hennepin County Sanatorium Commission and staff, the Health Action Committee, the Chambers of Commerce, the State Health Department, and the United States Public Health Service.

If our plans are carried out successfully, we will be the first large city to have X-rayed the chests of the majority of our people. To you we come asking for your approval, for your advice, and for your guidance in this large task. In justification of our proposal, let me briefly evaluate the position of the City of Minneapolis in the tuberculosis picture.

During the thirty-year period from 1915 to 1944, the mortality rate from all forms of tuberculosis in Minnesota has been reduced 73 percent. During the same period Boynton reported a reduction in tuberculosis deaths among children under fifteen years of age of 88 percent, and among infants under one year of age of 93 percent. In 1915 there were 260 deaths from tuberculosis among children under 15 years of age, compared to 26 in the year 1944. The number of deaths for all ages dropped from an annual average of over 1800 prior to 1920 to less than 700 during the past 5 years.

In Minneapolis, the death rate dropped from 222 per 100,000 population in 1889 to 27.4 in 1945 (epidemiological rate). According to Myers the tuberculus infection among grade-school children in the same schools at intervals of approximately one decade starting in 1925 dropped from 47.3 to 18.9 percent in 1936 and to a low of 7.7 percent in 1944.

A considerable part of the reduced prevalence of tuberculosis in its various stages in this country, according to Myers, must be credited to the work of the veterinarians in controlling tuberculosis in cattle. By 1940, every State in the Union had become a modified accredited area with only four-tenths of 1 percent of 67,000,000 cattle reacting to tuberculin.

Several years ago the efforts at control through hospitalizing known cases were so successful throughout the State of Minnesota and in Hennepin County that while most other sections of the country were pleading for additional beds, there were about 750 idle beds for tuberculosis patients in this State.

Despite this splendid record, however, several facts demand an intensification of tuberculosis control in Minneapolis.

(1) Minneapolis in the period 1939 to 1941 ranked first in the nation in the control of tuberculosis, as judged by death rates for the

92 cities with populations of over 100,000. During the past few years, however, other cities and other parts of Minnesota have begun to forge ahead of Minneapolis.

(2) For a period of twenty years (1925-44), two-thirds of the reported cases of tuberculosis in Minneapolis were in the moderately advanced or far advanced stages. However, when a new approach in case-finding methods (mass X-ray) was included in the Minneapolis program, fifty-one percent were found in the minimal stage.

(3) Less than nine percent of cases now being admitted to Glen Lake Sanatorium are in the minimal stage, as compared with a national standard of 20 percent.

During the past few years, millions of persons have been X-rayed in mass surveys throughout the country. This method is used in certain parts of Minnesota as you well know. According to Chadwick and Pope, 'In any community cases of tuberculosis can be found more economically through a tuberculosis clinic than by individual approach, but a substantial number will not come to a clinic. Part of the remaining cases can be reached through consultation service to physicians, and experience has shown this to be one of the most effective approaches to unrecognized tuberculosis in the community. But even when these two methods have been developed there will remain a considerable number of tuberculosis patients who will not come to doctors or clinics until the terminal stages of their disease, but who constitute a major reservoir of infection in the community. To reach this considerable fraction of tuberculosis in the population it becomes necessary to take the diagnostic facilities available to the patient and his family. In conjunction with the other two procedures it is the most effective way to discover and control the major part of the tuberculosis disease in the population.'

Our Drs. A. J. Chesley and D. A. Dukelow have estimated that there are more than 50,000 persons in Minnesota with significant tuberculosis, and that close to 5,000 of these are in an active stage. During the past five years, from 16 to 20 percent of all tuberculosis deaths have not been reported by physicians as cases prior to death. It has been pointed out, 'In a death from tuberculosis, never officially reported, or a living open case of tuberculosis, it is assumed that all members of the household have been exposed to massive and continuous infection.'

As Dr. Herman E. Hilleboe has pointed out, in striving toward our goal, the eradication of tuberculosis, 'Our principal task *** is to extend tuberculosis control activities so as to reach the greatest number of essential workers and their families in the shortest possible time, making full use of all governmental and voluntary resources.' 'Health Education,' Dr. Hilleboe has stated, 'as well as being general in nature, must soon become quite specific and must be directed to the individual family unit. We are going to have to go into every single home in the community and find out who has not had an examination for tuberculosis and find out why they haven't had it and do something about getting an examination.'

In Columbus, Georgia, 53,000 out of a total population of 70,000 were examined in six weeks. A similar undertaking in Minneapolis is too big for any one organization to attempt by itself. There is need for joint planning among the Medical Society, official agencies, and voluntary agencies. With such planning it is possible to obtain assist-

ance from the State and Federal governments to mass X-ray the majority of families in Minneapolis in a 6 to 12 month period. Teamwork is a necessity. An intensified program of State and local case finding and treatment should maintain Minneapolis' and Minnesota's outstanding record in tuberculosis control and point the way to ultimate eradication of the disease.

It is our hope to X-ray rapidly, as a screening process, the entire adult population of Minneapolis, and to reduce the incidence of new cases by isolating and treating all open cases.

We feel that this will be an opportunity for the public to learn the value of a periodic examination in the physician's office, including chest X-ray. Cases will be discovered in their early stage, at which time the chances of recovery are greatest, economic loss to the individual and community is least, and the hazards of spread are at a minimum. Most important, we will be using the services of an entire community to achieve our goal, the defeat of tuberculosis within Minneapolis.

CHAPTER I

ORGANIZING THE SURVEY

By the time the Minneapolis Community Chest X-ray Survey was initiated, the Nation had already seen several demonstrations in mass radiography. Mass chest X-ray surveys had been conducted both in industry and special population groups and among total populations of rural and urban areas. Nowhere, however, had an area of such population size and diversity as Minneapolis been subjected to the scrutiny of the X-ray as a tuberculosis case-finding tool.

In a city of 500,000 inhabitants and extensive commerce and industry, the Community-wide Survey represented a challenge to all interested in public health and the control of tuberculosis. To attempt such a program in a large city was not only a challenge but a test of the ability of community forces to unite for action under the leadership of official health auspices.

From May 5 to August 25, 1947, Minneapolitans met this challenge and demonstrated their willingness to act in the interests of their own and their community's health. This was accomplished despite almost insurmountable problems of organization and financing presented from time to time. In the brief span of 16 weeks, three-quarters of the city's adult population paraded before the critical eyes of eleven X-ray units to prove that a large city can mobilize for the control of tuberculosis.

Beginnings of the Survey Organization

At a meeting of the Executive Board of the Hennepin County Medical Society held in September, 1946, Dr. Frank J. Hill, Commissioner of Health of the City of Minneapolis, and Dr. C. E. Merkert proposed that a mass chest X-ray survey be undertaken for the adult population of Minneapolis as a means of discovering tuberculosis and other chest diseases. The proposal was greeted with great interest and enthusiastic approval by the Society. Soon thereafter, the project was also approved by the Minnesota Medical Society.

With the support of organized medicine assured, the Commissioner of Health, on October 4, 1946, and by authorization of the Minneapolis Board of Public Welfare, transmitted a request for approval of the Survey to the State Health Officer. (Figure 1) In his letter, the Commissioner specifically requested that the United States Public Health Service be approached for their assistance and material help in the form of equipment, supplies, and professional and technical services.

Immediately upon acceptance of cooperative responsibility for the survey by the USPHS, the Mayor of Minneapolis, who is also the President of the Board of Public Welfare, appointed an Executive Committee to work with the City Health Department in an executive capacity for the conduct of the forthcoming Mass Chest X-ray Survey. These appointments were confirmed by the Board of Public Welfare.

The Hennepin County Tuberculosis Association and the Medical Society assumed co-sponsorship of the Survey with the official agencies. In short order, the ranks of the original sponsors were augmented by the Minnesota State Cancer Society, the Hennepin County Chapter of the American Red Cross, the Minnesota State Department of Health, and Glen Lake Sanatorium Commission. The Executive Committee was enlarged from

City of Minneapolis

DIVISION OF PUBLIC HEALTH
CITY HALL
F. J. HILL, M. D., M. P. H.
COMMISSIONER OF HEALTH

October 4, 1946

A. J. Chesley, M. D.
State Health Officer
State of Minnesota
Minneapolis, Minnesota

Dear Doctor Chesley:

The splendid record toward tuberculosis control in Minneapolis, with a drop in mortality rate from 222 per 100,000 population in 1889 to a three year average of only 20.9 during the years 1939-1941, was achieved through the cooperative efforts of physicians, health departments, sanatoria, Hennepin County Tuberculosis Association, and many individual citizens. The outstanding record of Minneapolis of leading the cities of the United States in tuberculosis control has been jeopardized during the war period and since then. There has been an increase in the number of deaths from tuberculosis and in the death rate during the past four years.

The Hennepin County Medical Society Board of Directors, which has been a leader in public health activities for many years, recently voted to sponsor a mass x-ray survey of the adult population of Minneapolis. The objectives of the program being to eradicate tuberculosis as rapidly as possible; to at the same time begin an active campaign toward the decrease in deaths from the two leading killers, namely, heart disease and cancer (by finding some cases of lung and respiratory cancer).

The project has the approval of the State Medical Association and the assurance from Dr. Ernest Mariette, President, Hennepin County Tuberculosis Society and its executive secretary, Mrs. K. R. Pearce, that cooperation would be forthcoming if request for a survey is granted.

I hereby request, through your kind offices and those of the United States Public Health Service, that the City of Minneapolis be furnished by the United States Public Health Service, 8 to 12 mobile units fully equipped with personnel and all the films and records necessary to adequately cover the metropolitan area. In addition, we will need the services immediately of a tuberculosis consultant, a health education specialist, record analyst, a statistician, and whatever number of public health nurses may be spared, so that they may relieve some of our present staff from present duties and make them available for tuberculosis work in which they have had years of experience. Thanking you for this and past favors, I am,

Respectfully yours,

F. J. Hill

F. J. Hill, M.D., M.P.H.
Commissioner

FJH:mh

FIGURE 1. Formal request for State and Federal assistance in the conduct of the Survey.

a membership of three to five, with the Chairman representing the Hennepin County Medical Society and a representative each from the Hennepin County Tuberculosis Association, the Hennepin County Chapter of the American Red Cross, the Minneapolis Board of Public Welfare, and the Commissioner of Health.

An Advisory Committee was appointed, composed of professional and lay persons, to serve in an auxiliary capacity to the Executive Committee in establishing the organizational pattern for the community program. This Committee recommended the creation of two planning groups, one on promotion and education, and the other on the technical and operational aspects of the program.

The Executive Committee appointed as General Chairman a man with broad community knowledge and interests. Through his efforts, a Finance Committee was appointed, and chairmen were selected to direct the subordinate phases of the promotional and educational activities.

In the development of a project of such magnitude, necessitating the utilization of widespread community resources and requiring considerable community financial support, it was inevitable that serious problems would arise. For one, Minneapolis was the first city of its size to undertake a city-wide survey with ten or more units scheduled for neighborhood operations. Consequently, there was no previous experience which could serve to solve such problems as cost and methods of organization. Moreover, the city government was not in a position to contribute to the financial support of the survey, so that funds had to be provided from unofficial sources, which necessitated further delay in planning the program. These were some of the problems which created uncertainties in the early days of the survey's planning and retarded organizational development.

After creation of the survey's organizational pattern and preliminary consultation with officials of the Public Health Service, an agreement was reached between the cooperating agencies, under whose terms the survey went into operation. This agreement specified the extent of each of the cooperators' contributions toward the conduct of the survey in terms of financial support, equipment, and personnel. With its ratification, the survey was formally launched as a committed obligation of the cooperating and participating organizations.

CHAPTER II

MEDICAL POLICIES

The Technical Committee, which was appointed by the Executive Committee, was charged with the responsibility of determining the medical policies and diagnostic standards to be used in the Survey, and of planning for appropriate records, clinical facilities, and follow-up case management. The committee consisted of physicians, including general practitioners, radiologists, internists, tuberculosis specialists, and cardiologists, and in addition, included laboratory specialists and public health nurses, as well as representatives of such organizations as the Health Department, the Sanatorium Commission, the Minneapolis General Hospital, outpatient clinics, the University of Minnesota Hospitals, and United States Public Health Service. Assisting the Committee were technical advisors from the School of Public Health of the University of Minnesota and from the State Health Department. In practice, the Committee's work was divided among several sub-committees: one on records, one on laboratory procedures, and one on special nursing, medical, social, and rehabilitation problems.

Several of the most important decisions of the Technical Committee are presented below:

Scope of the Survey

In determining the scope of the Minneapolis Survey, practicality and maximum service were the principal considerations. Although the city could have mobilized to examine all residents, the value of such a procedure was seriously questioned by the Technical Committee.

It was known from past experience that the incidence of clinical findings was low among children under the age of 15. In terms of cost per active case found, therefore, it appeared that the greatest service would result if the Survey were limited to those over 15 years of age. So it was that the Committee recommended that the Survey examine all residents of Minneapolis over the age of 15, and that all children under that age be excluded.

Diagnostic Standards

The purpose of the small-film photofluorogram, the basic case-finding device, was merely to locate the suspects. These were later to be confirmed as suspects by a 14"x17" film.

For all suspects discovered by 14"x17" film examination, the Technical Committee suggested the four basic studies recommended in 'Guide for Disposition of Persons with Abnormal Pulmonary Findings,' by Hilleboe and Holm (PUBLIC HEALTH REPORTS, Dec. 6, 1946), as follows:

1. Medical history and physical examination.
2. Serial x-ray examinations.
3. Tuberculin tests.
4. Bacteriological studies.

Where cardiac enlargement was suspected on the basis of the small-film impression, the Committee recommended that referral to the private physician be immediate. This was done because it was felt that no special advantage could be gained from the use of 14"x17" film in these cases.

Diagnostic Facilities

Radiological equipment for the Survey, including both small-film photofluorographs and 14"x17" celluloid-film equipment, was to be furnished by the U. S. Public Health Service and one mobile unit by the Hennepin County Tuberculosis Association. The 14"x17" Retake Clinic was established within Survey Headquarters, in space adjoining offices of the local Health Department, in order to permit efficient management of case records and orderly follow-up.

Mobilization of local laboratory facilities for the Survey was one of the most difficult problems the Committee faced. Normal follow-up work demanded virtually all the resources of the City and State Health Department Laboratories and those of Glen Lake Sanatorium. Moreover, it was difficult to predict exactly what additional burden the Survey would impose upon these already-busy facilities.

The Committee estimated that the Survey might discover about 2,000 persons whose X-ray films would reveal abnormal pulmonary conditions and who would react to tuberculin. All these would require bacteriological study. In view of authoritative studies, it was suggested that a minimum of four bacteriological tests should be required for each such person. On this basis, the Committee had to provide for approximately 8,000 bacteriological studies. To complete these studies they felt that a period of one year following the conclusion of the Survey would be required.

In order to accomodate this workload, the State Health Department agreed to do an additional 50 cultures per week; Glen Lake Sanatorium, 20 weekly; and the city health department, the balance of the required investigations.

To prepare for its share of the work, the city health department made the following adjustments:

a. Two temporary employees, whose salaries were paid by the central Survey organization, were added to the staff;
b. The number of milk samples and swab tests on eating utensils was curtailed;
c. The laboratory began to make its own culture media, instead of purchasing it from outside sources;
d. A more efficient numbering system for specimens was devised, and an improved record system instituted in the laboratory.

Furthermore, in order to provide for the prompt testing of gastric specimens, it was decided that all gastric lavages for patients referred by the clinic or by private physicians would be conducted within the city, at the health department clinic or at Glen Lake Sanatorium. At the city health department, patients were to be permitted to report for their examinations in early-morning hours, while, at Glen Lake Sanatorium, overnight hospitalization and early-morning lavaging was to be the practice. None of the patients accepted hospitalization for gastric lavage but preferred coming on an outpatient basis.

Disposition of Persons with Positive Findings

As a matter of Survey policy, the Committee decided that, where positive findings were discovered in the small-film photofluorograms and confirmed by 14"x17" films, the persons involved would be permitted the choice of referral to the Public Health Clinic or to private physicians. There was no economic needs test for diagnostic services

at the Public Health Clinic. Thirty percent selected public clinics and 70 percent private physicians.

The Committee was informed that Minneapolis had ample facilities for the care of non-tuberculosis indigents at the University Hospital and the Minneapolis General Hospital, as well as many private hospitals in the city. Consequently, no special provision had to be made to effect proper follow-up and treatment for this group.

Selective Isolation and Hospitalization

In Minneapolis, the number of sanatorium beds per yearly tuberculosis death totalled 5. The actual number available, however, was somewhat less because of the shortage of nursing personnel.

In addition to being an isolation and treatment center, Glen Lake Sanatorium had for many years served as a diagnostic center for Minneapolis private physicians. However, in view of the fact that the mass survey was expected to reveal a large number of suspects who would require further diagnostic study, it was apparent that the continuation of this policy would be wasteful and would impair the sanatorium's effectiveness as an isolation center. The use of sanatorium beds for patients presenting only radiological evidence of tuberculosis seemed economically and epidemiologically unsound. It was, therefore, agreed that Glen Lake Sanatorium would alter its admission policies and that diagnostic follow-up would be performed by private physicians and the the Public Health Center Clinic, Glen Lake's Outpatient Clinic. Thus, the sanatorium's beds were reserved for infectious cases and those clinically in need of hospitalization.

In general, the criteria selected by the Technical Committee for hospital admission were those suggested by Hilleboe and Holm in their disposition guide, as follows:

1. Positive sputum.
2. Spreading lesion, radiologically and clinically consistent with tuberculosis.
3. Reactivation of old disease.
4. Nonpulmonary tuberculosis on basis of clinical need.
5. Pleurisy with effusion.

CHAPTER III

THE COMMUNITY ORGANIZATION

The guiding principle in the Minneapolis Survey community organization was help from everyone. With this principle in mind, the Coordinator -- later the Executive Director -- in January 1947, called a meeting of 'key' persons in education, religion, labor, business and social welfare. Their help was invited, and the Coordinator and U. S. Public Health Service Health Education Consultant discussed the problem of community organization.

At this meeting a small sub-committee, whose Chairman was the Professor of Health Education at the University of Minnesota, and the staff of the Central Planning and Research Department of the Council of Social Agencies, was appointed to draw up and recommend a plan of organization which would reach into every home in the City. Within a few days, a plan of neighborhood organization was submitted and adopted.

Graduate students from the University worked out the details of this plan, in which the City was divided into 30 districts. These were to be built around Community Councils, in which churches, parent and teacher organizations, Y.M.C.A., and other groups were represented. Where Community Councils were not organized, the districts were to be organized around natural neighborhood groups.

The General Chairman appointed a young, capable, Municipal Court Judge, a leader in community organizations, to head the neighborhood activities. To assist him in the work of mobilizing the community for the campaign, the Judge in turn formed a committee consisting of branch Y.M.C.A. executives, head residents of settlement houses, Boy Scout executives, and neighborhood community council executives. These men and women acted as consultants in each of the 30 districts, and assisted in the selection of District Chairmen, Area Captains, and Block Leaders. Beyond this, the neighborhood organization and activities were left to the initiative and ingenuity of local volunteers aided by U. S. Public Health Service consultants.

Each of the 30 districts was divided into areas in which a site was selected for the placement of an X-ray unit according to a planned schedule. These unit sites were within easy walking distance of everyone in the district.

High schools were organized separately and students were X-rayed during the first ten days of the Survey. Industrial plants with more than 100 employees were also organized separately, smaller plants and businesses, however, were included in the neighborhood organizational structure. (Figure 2)

The Neighborhood Operation

By the time unit operations began, the basic community organization was complete and ready to go into action. Each district had a chairman and a consultant. Area leaders had been selected, and they, in turn, had organized a staff of block workers, wherever possible.

Up to this point, promotional activities had been conducted on a mass scale under the direction of the Information Committee. Newspapers,

FIGURE 2. District Meeting of Area Leaders

radio stations, and advertisers had been called upon to inform the community on the objectives and purposes of the Survey.

Beginning in January, 1947, occasional survey announcements had appeared in the press and over the radio. Volunteer speakers had begun in April to address church, Parent-Teachers' Associations, commercial, civic, professional, labor and fraternal groups. Junior and senior high school teachers had begun by this time to devote major teaching units to health education and the value of the X-ray. Promotional tags bearing the motto, 'Let X-ray Say Okay' began to appear in utility bill envelopes, grocery baskets, and laundry parcels.

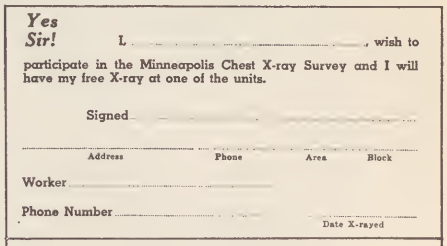
As the opening date for the Survey approached, newspaper articles, radio announcements, and radio scripts began to increase in number. Survey posters began to appear in transit cars, local businesses began to carry the Survey's message in their advertising material, and newspapers and radio stations began to give the program widespread coverage.

Finally, one week before the X-ray units were scheduled to appear in a particular district, promotional efforts within the locality were intensified markedly. District Chairmen met with their Area Captains and Block Leaders, placed promotional materials into the hands of the block workers and carefully reviewed the plan of operation. The district campaign was then ready to go into high gear with the appearance of the X-ray units.

In most districts, residents of a neighborhood were approached through a house-to-house canvass. Block workers, under the supervision of block and area leaders, visited individuals in their homes to 'enlist' their participation in the Survey. Concurrently, volunteer workers active in business and the professions visited commercial and professional establishments and 'sold' the Survey to employers and employees. In this fashion, full information concerning the Survey went directly to the people.

The system of 'enlistment' proved to be a highly successful device. In many a home visit, block workers got all adult members of a household to sign an 'enlistment' card (Figure 3), promising to participate in the program by taking an X-ray at the scheduled time. Where persons were not found at home, promotional literature, as well as schedules of X-ray operations, were left at the door.

In one district where the Chairman used only schedule flyers to promote the Survey, the daily 'take' at the local X-ray unit averaged 72. In another comparable district, on the other hand, where the 'enlistment' device was standard practice, as many as 630 X-rays were taken in a single day.


Yes Sir! I ..... , wish to participate in the Minneapolis Chest X-ray Survey and I will have my free X-ray at one of the units.

Signed .....

Address ..... Phone ..... Area ..... Block .....

Worker .....

Phone Number ..... Date X-rayed .....

FIGURE 3.
Home Enlistment Card

In those areas where block workers were not available for a house-to-house approach, other methods were employed. In one district, for example, a handful of volunteers canvassed the neighborhood by telephone. In another, where a Boy Scout executive served as Chairman, Boy Scouts distributed literature and took the survey's message into the homes of the district.

During the last half of the Survey, a sound truck was employed to go through the areas in which the X-ray units were operating. In addition, when the mobile units were stationed at busy street car intersections, portable public address systems were installed and operated by students of local radio schools.

Volunteer hostesses welcomed the people to the X-ray units, directed them to the machines and distributed additional propaganda as people left the units. In some instances, these volunteers served as 'baby-sitters' and cared for small children while mothers were being X-rayed.

As the closing days of the survey drew near, promotion took on a new impetus. Through the press, over the radio, in pamphlets, posters, and handbills, went the appeal: 'Only 20 days to get your free X-ray!' 'You can fight what you can see!' 'Everybody's doing it!' At the front door, over the telephone, community leaders and block workers told their neighbors, friends, and associates, 'Okay, let's X-ray today!' 'It's free -- it's easy -- it's confidential!'

The survey teams now moved into the congested, downtown sections of the city, to reach those who had not been screened in the residential districts. For eleven days, volunteer workers combed busy, cross-town Lake Street, laying a propaganda barrage from one end of the area to the other. Telephone and electric light poles, store windows, and building fronts were plastered with posters; lapel tags were distributed; and sound trucks cruised the area tirelessly. The mobile X-ray

unit, which had appeared at one end of the street, each day moved to the

FIGURE 4. Lapel Tag

next busy intersection, until, at the end of the eleven-day period, the entire sector had been covered and 1,000 persons had been X-rayed daily.

GET YOUR **FREE**

CHEST X-RAY

RIGHT IN YOUR OWN NEIGHBORHOOD

***for* ALL 15 YEARS OF AGE AND OVER**

FIGURE 5. Promotional Sign Poster

CHAPTER IV

PUBLIC RELATIONS, PROMOTION, AND PUBLICITY

With the appointment of the Information and Services Committee by the Executive Committee, the 'sales program' of the survey began to take shape under the professional direction of the Public Relations Counselor of a local advertising agency. As one of its first acts, the Information Committee employed a market research organization to ascertain public reaction to the survey. This organization was instructed to investigate general reactions to the program, as well as possible resistance. On the basis of that preliminary poll, it was decided that the public approach should be almost entirely positive. All 'scare' copy was therefore to be eliminated from advertising and publicity materials. Over-all themes and slogans were developed at conferences attended by the Executive Director, the public relations chairman, and U. S. Public Health Service health education consultants. The campaign catchphrase became 'Let X-ray Say Okay.'

Four 'sales points' were selected for special emphasis. These declared that an X-ray examination was 'quick, easy (no undressing), confidential and free.' It is impossible to say which of these was the most compelling. Together, they seemed to cover the points of greatest interest to the public.

From the very beginning of the Survey, it was apparent that full support could be expected from the city's press and radio outlets. The direct approach to the press, however, was held up until complete financing of the Survey was assured. Consequently, full publicity was delayed until about six weeks before the Survey.

The Survey's promotion was spurred when, in the pre-survey period, a popular, able, and respected general chairman was chosen to direct the Survey's planning. Because of his civic stature, the appointment of the general chairman resulted almost immediately in increased press and radio interest and enthusiasm, as well as in the active participation of many of Minneapolis' most influential citizens.

As a means of promoting the Survey, the Information and Services Committee divided its functions among several subcommittees, each of which was headed by a specialist. These subcommittees were augmented by volunteers active in Minneapolis' civic and social life, and were advised by U.S. Public Health Service Health Education Consultants.

Sub-committee Activities

The following subcommittees conducted the actual business of Survey publicity:

Press

The press officer of the Hennepin County Tuberculosis Association headed this activity. Before the Survey began, the Tuberculosis Association assigned this person to the program on a full-time basis, and, in addition, contributed the full-time services of an assistant. The general pattern for early news involved the development of the survey organization and the naming of committee chairmen. Later, there was spot news of the Survey operation itself.

It is significant that the job of promoting the Survey was handed

over to newspapers and radio stations as their own project. There was only one restriction; the names of individuals X-rayed were not to be divulged.

Radio

All evening paper news releases concerning the X-ray Survey were distributed to the seven local radio stations in time for noon broadcasts. In addition, time was given freely to the X-ray Schedule, and radio newsmen visited X-ray Headquarters frequently for stories on the Survey. In emergencies, such as sudden changes in schedule, stations gave their full cooperation. Such emergency announcements were directed to the residents of a specific area, giving full instructions on schedules and locations.

'The Constant Invader', a series of 13 transcribed quarter-hour broadcasts on tuberculosis, produced by the National Tuberculosis Association, was broadcast throughout the Survey by five of the seven local stations. These programs, featuring Lionel Barrymore, were scheduled on morning, afternoon and evening time and also on Frequency Modulation, in order to reach the widest possible audience.

The radio director of a local advertising agency accepted the radio chairmanship and responsibility for stimulating radio coverage. Among the most effective programs he produced were four transcriptions by Kate Smith, Henry Morgan, Bob Hope, and Jack Benny. These brief messages, urging Minneapolitans to be X-rayed, were broadcast repeatedly during the campaign. In all, Minneapolis radio stations contributed a tremendous amount of time to the survey.

Speakers' Bureau

The speakers' bureau recruited a group of 80 speakers, both men and women. An easel presentation permitted the speakers to deliver authentic, brief messages before service groups, clubs, and other organizations. Thus, in a few weeks, over 200 organizations were addressed, with 40,000 persons in the listening audience.

Advertising

An executive of one of the city's four leading department stores acted as chairman of the subcommittee on retail advertising cooperation. At his suggestion, large department stores were asked to give space in their newspaper ads to 'drop-in' reminder copy, and each store agreed to do so for five days a month on a staggered schedule. Utility companies agreed to enclose promotional materials with their monthly bills, and several of the larger stores placed Survey exhibits in their display windows.

Magazines

The outstanding magazine publicity was furnished by LOOK magazine, which sent a writer and a photographer to Minneapolis to do a feature story on the Survey. For five days, the LOOK staff took pictures and gathered material for a full-length article.

Miscellaneous

Through the National Council of Christians and Jews, clergymen were furnished with brief announcements which they delivered from their pulpits when the Survey units appeared in their respective neighborhoods.

A one-minute movie trailer was produced to tell the story of the the Chest X-ray Survey. It was exhibited in neighborhood theatres where

X-ray units were located. Forty theaters agreed to show the trailer for a total run of about two weeks in each neighborhood.

The advertising 'package'

A variety of devices was used to promote the Survey (Figure 6). A few, of extreme simplicity, were intended to serve as simple reminders. Others stressed the Survey's speed and ease, and the facts that it was confidential and free of charge. A few gave the public a somewhat broader concept of the Survey, including some rudimentary information on the chief diseases discovered by X-ray. The materials produced included:

A miniature newspaper, called Chest X-ray News, for distribution by speakers and block workers. There were 20,000 copies of these, designed to give the reader a fairly comprehensive picture of the Survey and its value. Originally, this was to be made up in the form of an 'Extra' giving the schedule of the X-ray units by neighborhoods, but this was dropped since it was cumbersome and expensive.

A basic mailing leaflet, entitled 'Everybody's Doin' It,' giving highlights of the Survey.

A mimeographed 'Bible' giving all essential facts about the Survey for Survey workers and reporters. It was useful in early publicity, but was discarded by the time the Survey was launched.

Mimeographed 'Fact Sheets' covering essential information about tuberculosis, heart disease, and lung cancer, as well as the program itself.

A congratulatory message, to be distributed at the X-ray units following the examination. This was headed, 'Be a Good Friend to a Friend of Yours,' and through the courtesy of King Features syndicate, bore the cartoon figure of little 'Henry'. The card was not used extensively at the portable units since hostesses, who were to distribute the cards at the unit locations, had to stand too near the front of the X-ray machines in order to hand them out. It was distributed at mobile units, however, where the physical arrangement permitted it.

Brief, 30-second announcements (reminder-type) were made at numerous large public events, such as baseball games, boxing matches, and theatricals.

Two-color 'stuffers' were prepared for enclosure with monthly bills mailed by utility companies.

Bright yellow-and-black window stickers were prepared for distribution by block workers. Many of these were mounted on windows and on windshields and served a useful 'reminder' purpose.

Instruction sheets were prepared for the use of voluntary workers.

Twelve-by-twenty-inch black-and-white posters for walls, telephone poles, and bulletin boards provided space at the bottom for inserting unit schedules, dates and locations. (Figure 7)

Street-car cards carried the Survey's message to every section of Minneapolis throughout the period of the campaign.

Milk-bottle caps, with a brief message, were widely distributed by the milk companies.

Postage meters plates were delivered to the major retail stores for use on their mail.

'Drop-in' cuts were made in two sizes for use in ad space donated by retail advertisers. In addition, a few mats were made and placed at

MINNEAPOLIS CHEST X-RAY

NEWS

Community-Wide

YOU CAN FIGHT WHAT YOU CAN SEE . . .

CITY SETS HEALTH PACE

TB Eradication In Minneapolis Is Goal of X-Ray

Ultimate eradication of tuberculosis from Minneapolis is one aim of the community - wide chest X-ray survey.

X-raying of the city is now being done by the Hennepin County Tuberculosis Association, with one mobile unit.

Stuart Rider, Tb association representatives on the community - wide chest X-ray survey executive committee, estimates it would take this unit 10 years to X-ray everybody. With 10 U. S. Public Health Service units helping, the job may be done in about three months.

In 10 years Tb can spread into areas where it was not found at the time of the X-ray. Mass X-raying reduces this danger.

S. W. Rider
Tribune Photo

Tb Is Curable If Caught Early

Tuberculosis can be cured in most instances if it is discovered early.

This reassurance comes from Dr. F. J. Hill, city health commissioner. Dr. Hill points out that a chest X-ray makes early discovary of Tb possible.

(Continued on page 3)

Miss Jean Larson, a junior at the University of Minnesota, shows how simple a chest X-ray is . . . no undressing . . . just remove metal objects from the chest.

Cancer Must Be Detected Early

Cancer in its early stages can generally be cured. But it must be found early—before it has had a chance to spread.

Cancer gives no warning sign of pain, until it is dangerously far advanced.

A chest X-ray will uncovar some early cases of cancer in the chest while there is still hope for cure.

(Continued on page 2)

IMPORTANT!

If you miss being X-rayed in your neighborhood or place of work, you may still have a free chest X-ray at the Public Health Center, 249 S. 4th St.

Minneapolis Is First Big City To Ray Everyone

By O. J. Arnold
General Chairman
Chest X-ray Survey

For the first time in history, a big city has undertaken to X-ray—free—the chests of every resident over 15.

Minneapolis was chosen for this survey by the U. S. Public Health Service because of its size, facilities, active civic organizations. Health workers the world over will follow this experiment in public health.

Survey purpose is to locate three major undiscovered killers which lurk in the chest area. These are heart diseases, lung cancers, tuberculosis. More than 60 other maladies may also be found by this X-ray.

Mobile or portable units will visit

(Continued on page 3)

O. J. Arnold
Times Photo

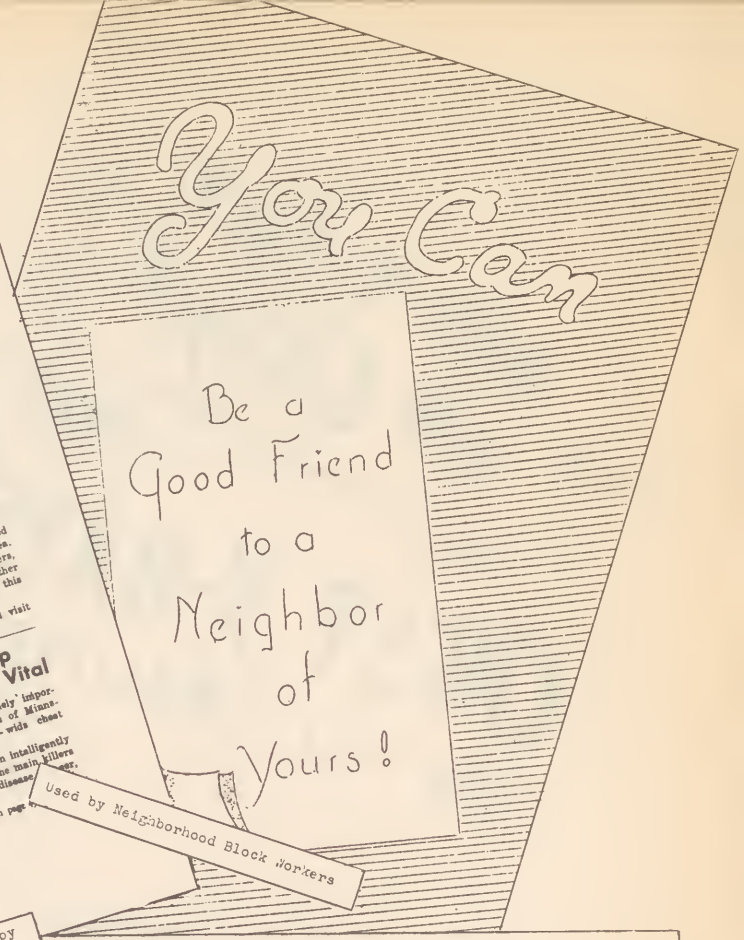
X-Ray Follow-up Program Is Vital

Doctors see two extremely important gains for the people of Minneapolis in a community - wide chest X-ray survey.

First, the city can plan intelligently to cope with three of the main killers of its people—heart disease, cancer, tuberculosis.

(Continued on page

Promotional "Newspaper" Widely Distributed by Members of Speakers' Bureau, High School Teachers, and Area and Block Workers



Used by Neighborhood Block Workers

You have a date FOR A

FREE CHEST X-RAY

GET YOURS AT ANY OF THE FOLLOWING LOCATIONS BETWEEN THE HOURS OF 1:00 P. M. and 8:00 P. M.

Area	Location	Dates in operation
B 1	Between 36th & 37th Ave. N. E. on Marshall	June 30
B 2 & B 3	Between 35th & 36th Ave. N. E. on 2½ St.	July 1
B 6	Schiller School 26th Ave. N. E. and Grand	July 7, 8 and 9
B 9	Sacred Heart Church 22nd Ave. N. E. and 5th Street	July 10 and 11
B 10	Edison High 22nd Ave. N. E. and Monroe	July 9, 10 and 11
B 14	Northeast Neighborhood House 1929 N. E. Second Street	July 18, 21 and 22
B 15	Holland School 17th Ave. N. E. and Washington	July 23, 24 and 25

OR—Go to the downtown location
Northwestern Bank Building, Marquette Entrance
Monday through Friday to August 20 — Hours 8:30 A. M. to 5:00 P. M.
Saturdays 8:30 A. M. to 12:00 Noon

Under the Direction of
MINNEAPOLIS HEALTH DEPARTMENT

Sponsored by
Hennepin County Medical Society
Hennepin County Tuberculosis Association
Minnesota State Cancer Society

with Cooperation of
United States Public Health Service
Minnesota State Department of Health
Glen Lake Sanatorium Commission

Schedule Flyer

Widely Distributed at Neighborhood Meetings and by Block Workers

Figure 6

RIGHT IN YOUR OWN NEIGHBORHOOD

LET X-RAY
SAY *Okay!*

FREE chest X-RAY for everybody 15 years of age and over

Figure 7

STREET CAR CARD

the disposal of space salesmen, and a variety of copy themes was given to advertising managers.

Stationery was designed especially for the Survey.

Posters were given to firms whose employees had all been X-rayed. These read, 'Yes, Sir! We Are X-rayed 100%.'

Leaflets reading, 'You have a date for a free chest X-ray' were printed for distribution by the neighborhood organization. Special posters were also prepared and placed in industrial establishments to notify employees of plant X-ray schedules. (Figure 8)

HENRY SAYS: "Be a Good Friend to a Friend of Yours"

Tell him about your free chest X-ray. Tell him how simple and easy and quick it is. Remind him that he is entitled to one, too. He can get one at any of the neighborhood X-ray units or in the permanent center in the Northwestern National Bank Bldg.

Reproduced by Permission of King Features Syndicate, Inc.

Card Given Persons Leaving X-ray Machine

COMING TO YOUR NEIGHBORHOOD

FREE CHEST X-RAY

for everybody 15 years of age and over

LET X-RAY SAY Okay!

QUICK • EASY • CONFIDENTIAL

Statement "Stuffer"

LET X-RAY SAY Okay!

WE ARE COOPERATING— ARE YOU?

Window Sticker

Yes Sir! the _____
Name of business

_____ _____ _____
Address Phone Area

wishes to participate in the Minneapolis Chest X-ray survey by being 100% in having free chest X-rays.

Signed _____

Worker _____ Date 100% card is issued

Phone Number _____ _____

Number X-rayed _____

Business "Enlistment" Card

LET X-RAY SAY Okay!

FREE chest X-RAY

for everyone 15 years of age and over

COMING TO YOUR NEIGHBORHOOD

Milk Bottle "Collar"

Figure 8

CHAPTER V

PLANNING THE ITINERARY

The general pattern established for the Survey's operations called for the placement of X-ray units within the local neighborhoods, so that no person would need walk more than a few blocks for an X-ray screening examination. In order to arrange for this, the Operations Committee set an itinerary team to work on about March 15, employing two engineers and one clerk-stenographer for the purpose.

The principal factors in the organization of the Survey's itinerary soon grew apparent. These were (1) the population to be served, and (2) the availability of physical facilities necessary for housing and operating the equipment. Preliminary planning for the itinerary, therefore, centered about the resolution of these two problems. In order to provide a graphic index of progress in the task, a block map of the city was obtained, and, as the necessary information was developed, it was transcribed to the map itself which was scaled 1" to 1000' (Figure 9).

Population and Areas

Data from the 1940 Census adjusted to 1947, and excluding children under 15 years of age, served largely as the basis for determining the population to be examined by the Survey and for the delineation of opertional areas:

Estimated City Population (1947)	509,000
Estimated Population	
Under 15 years of age	102,000
Total Eligible Population	407,000

On the basis of this estimate, the itinerary team proceeded to establish area boundaries. Governing factors in the delineation of these geographic units included (a) distances to probable X-ray locations, and (b) the necessity to select a sufficiently large population group to warrant the installation of portable X-ray equipment. Limitations, however, were imposed by the presence of rivers, swamps, streams, railroads or arterial highways. These fixed barriers served in many cases as area boundaries and account for the irregular outline of many areas.

Where an area included less than 500 persons, it was obvious that the installation of portable X-ray equipment would be uneconomical; nor did it seem wise to increase the size of such an area when so doing would force the people of that area to cross natural barriers or to travel excessive distances to unit installations. In such cases, therefore, it was decided that mobile X-ray units would be used, so that the operation in the particular area could be completed in the speediest and most convenient manner.

Locations for X-ray Equipment

Many public and quasi-public buildings throughout the city were found suitable for housing portable X-ray equipment. Accordingly, the itinerary team negotiated with officials in charge of many public and parochial school buildings, churches, park board buildings, fire stations, settlement houses, Red Cross chapter houses, veterans' clubs, and industrial buildings, in order to obtain consent for the use of the buildings as X-ray stations. As approvals were obtained, locations were designated on the city block map by colored tabs. In this manner, it was at all times possible to find the areas where additional locations

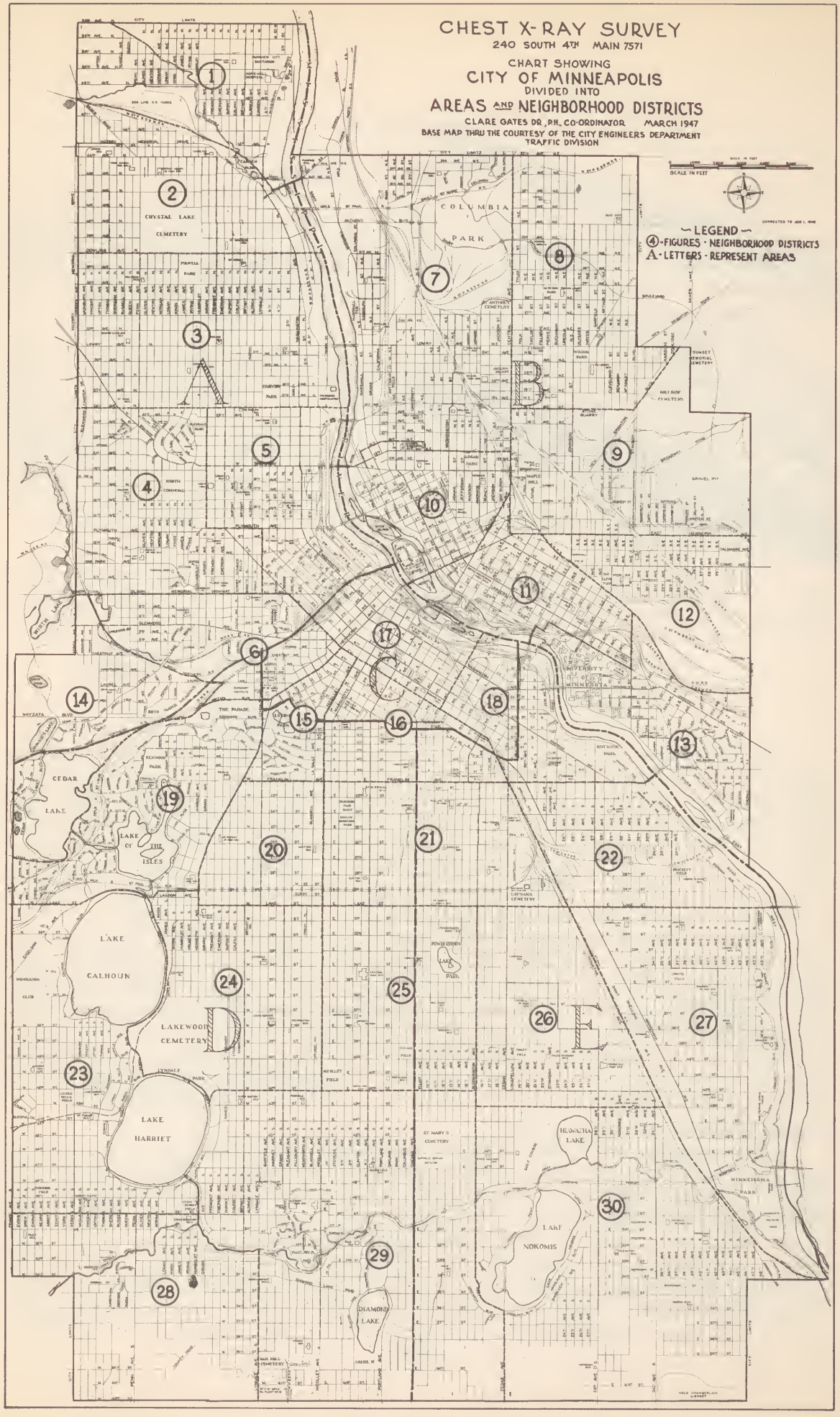


FIGURE 9. A City Organized for Health Action .

would be required and those where they could be eliminated.

With the assistance of electricians from the Park Board, the School Board, and the Northern States Power Company, the locations so selected were inspected for available power resources. In addition, locations for mobile-unit operations were selected and power-pole locations inspected and noted. Details of all locations and power resources for both mobile and portable installations were recorded on 5 x 8 index cards which were filed at Survey Headquarters (Figure 10). Mobile-unit

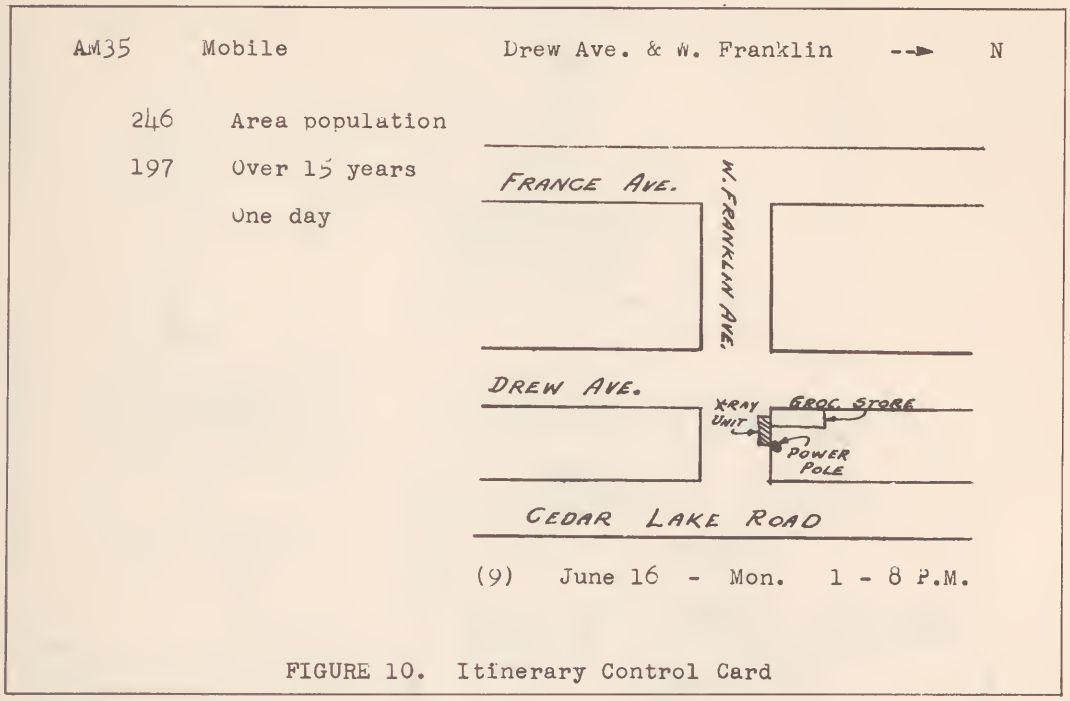


FIGURE 10. Itinerary Control Card

sites were also recorded, and Survey Headquarters, the Northern States Power Company, and the chief technician, were given memoranda of these locations

Length of Stay

As boundaries of an area were drawn, the approximate eligible population was determined in order to estimate the probable length of stay for each of the X-ray units. It was estimated that each unit could examine 400 to 600 persons per day, depending upon the type of unit employed, the density of the population, and the area size. In general, tentative schedules were based on daily assignments during the hours of 1:00 and 8:00 P.M. In the high schools, on the other hand, where the work could be intensive, it was expected that 800 per day could be screened within the hours of 8:30 A.M. and 12:00 Noon, and 1:00 to 3:00 P.M.

The decision to place a portable unit in the downtown area for the duration of the survey was not made until the itinerary was virtually completed. It developed, however, that this location was one of the most productive in the city.

Scheduling

In order to facilitate scheduling, the city was divided into five large zones which encompassed the thirty neighborhood districts. These zones were designated alphabetically, and boundaries were largely deter-

OPERATIONS FLOW CHART FOR MASS CHEST X-RAY SURVEY CITY OF MINNEAPOLIS

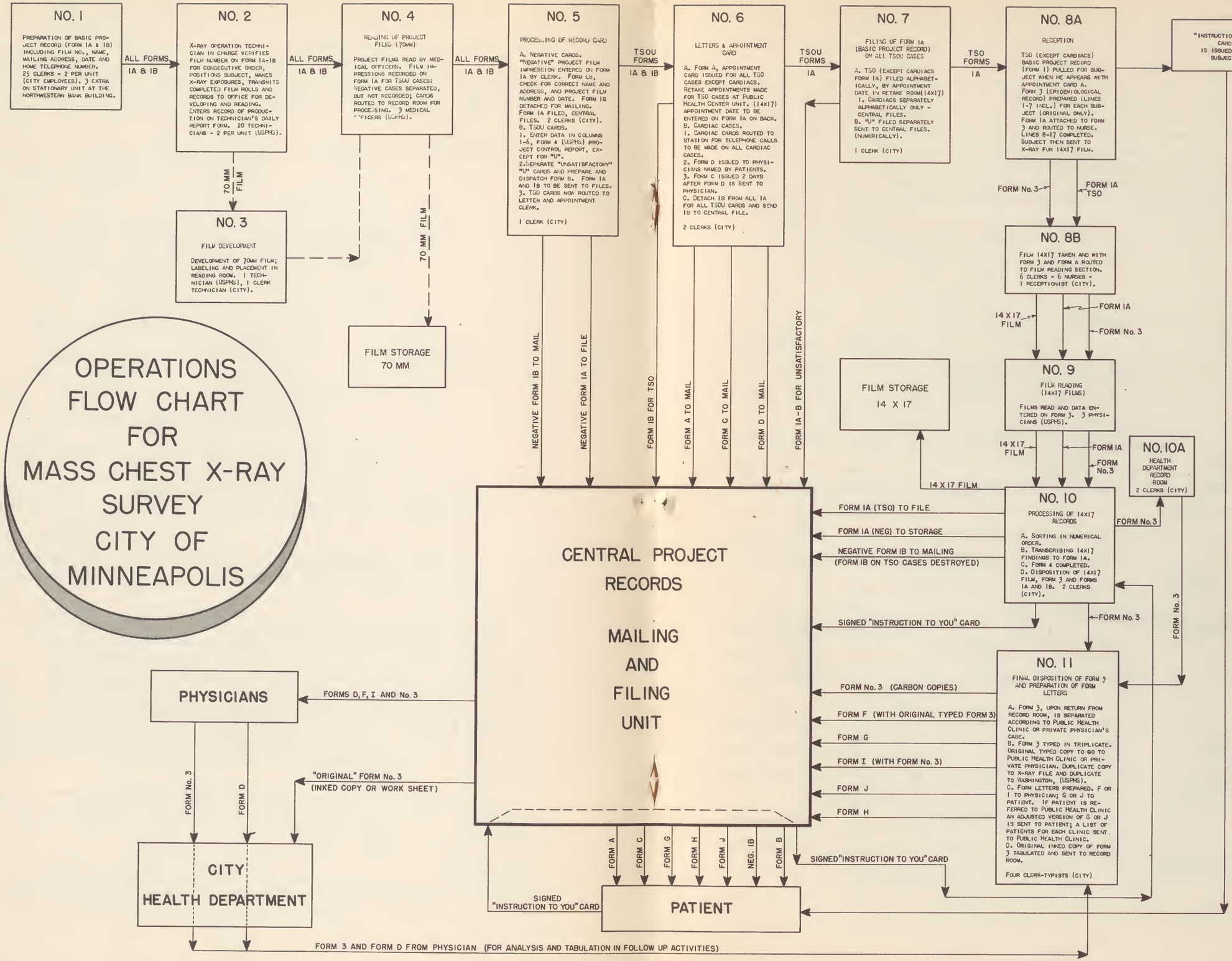


Figure 11

mined by the pattern of district and area limits.

Equipment available for scheduling at the various locations included eight portable and two mobile units assigned to the Survey by the U. S. Public Health Service, and one mobile unit from the Hennepin County Tuberculosis Association.

As developed by the itinerary team, the plan of operations called for the examination of high school populations first, followed by the screening of Zones A and E from the city limits to the loop, Zone C, and Zones B and D. On the basis of estimated zone populations, it was decided that Zone A would require three portable and one mobile units, and Zone E, four portable and two mobile units.

From this point on, scheduling was completed on each X-ray unit on a day-to-day basis. The method proved quite satisfactory and served to facilitate actual operations.

A typical schedule of operations is shown, in part, in Figure 12.

MONDAY, AUG. 4, 1947

UNIT	AREA	LOCATION	ADDRESS	MOVING TIME	OPERATING TIME
2	D11	Whittier School	Blaisdell Ave. S. & W. 26th St.		1 P.M. - 8 P.M.
3	D16	Clinton School	Clinton Ave. S. & E. 28th St.		1 P.M. - 8 P.M.
4		- FREE -			
5	B20	Pierce School	Broadway & Filmore St. N.E.		1 P.M. - 8 P.M.
6	D12	St. Stephen's School	2123 Clinton Ave. S.		1 P.M. - 8 P.M.
7	D10	Salem Lutheran Church	W. 28th St. & Garfield Ave. S.	8 A.M.-12 P.M.	1 P.M. - 8 P.M.
8		- SEE INDUSTRIAL SCHEDULE -			
9	D14	Mobile	Cedar Lake Ave. S. & W. 28th St.		1 P.M. - 8 P.M.
10	B22	Mobile	4th St. N.E. & 4th Ave. N.E.		1 P.M. - 8 P.M.
11		- SEE INDUSTRIAL SCHEDULE -			

TUESDAY, AUG. 5, 1947

UNIT	AREA	LOCATION	ADDRESS	MOVING TIME	OPERATING TIME
2	D11	Whittier School	Blaisdell Ave. S. & W. 26th St.		1 P.M. - 8 P.M.
3	D16	Clinton School	Clinton Ave. S. & E. 28th St.		1 P.M. - 8 P.M.
4		- FREE -			
5	B20	Pierce School	Broadway & Filmore St. N.E.		1 P.M. - 8 P.M.
6	D12	St. Stephen's School	2123 Clinton Ave. S.		1 P.M. - 8 P.M.
7	D10	Salem Lutheran Church	W. 28th St. & Garfield Ave. S.		1 P.M. - 8 P.M.
8		- SEE INDUSTRIAL SCHEDULE -			
9	D14	Mobile	Cedar Lake Ave. S. & W. 28th St.		1 P.M. - 8 P.M.
10	B22	Mobile	4th St. N.E. & 4th Ave. N.E.		1 P.M. - 8 P.M.
11		- SEE INDUSTRIAL SCHEDULE -			

FIGURE 12. A Typical Day's Schedule

CHAPTER VI

THE PUBLIC HEALTH NURSING PROGRAM

In order to organize nursing services for the Survey, a qualified tuberculosis nursing consultant was assigned to the Health Department by the U.S. Public Health Service four months prior to the beginning and during the unit operations. In this manner an attempt was made to integrate the nursing activities of the Survey within the normal health department program.

Budget Available for Nursing Service

Ten thousand dollars of the total survey budget were allocated for the employment of five additional public health nurses for a temporary period of six to eight months. This period was to extend from April 1, 1947 (one month in advance of the Survey), until completion of 70 mm. unit operations, 14"x17" retakes, and some phases of the follow-up program.

These five public health nurses were assigned to the Director of the Bureau of Nursing. Orientation consisted of observation; study; participation in the general nursing program of the health department during the first month; and review of the general nursing program and the record and reporting system. The greatest emphasis was placed on medical and nursing policies of the tuberculosis control program. In order to develop thorough coordination of medical and nursing services, and to provide opportunity for learning administrative policies and procedures, the nurses were assigned, on a half-time schedule, to the Public Health Center Tuberculosis Clinic.

Planning

The regular health department nursing staff, comprising 26 public health nurses, 3 general supervisors (one of whom served as assistant director), and the director, participated in pre-survey planning. At an early date, the Director of the Bureau of Nursing, the tuberculosis control medical officer, and the tuberculosis nursing consultant held a joint conference with the administrator of each local health and welfare agency to discuss the purpose of the Survey and some of the problems involved in follow-up. Plans were also laid for a subsequent meeting which was to have the following representation:

1. A psychiatric social worker from Children's and Family Service Society.
2. The Tuberculosis Control Officer of the Minneapolis City Health Department.
3. Social workers from the tuberculosis clinic of the Public Health Center, and the social service unit of the Minneapolis General Hospital outpatient department.
4. The regional supervisor of the Minnesota Department of Education, Division of Vocational Rehabilitation.
5. The nutritionist from the Community Health Service.
6. Nurses in charge of communicable disease and tuberculosis nursing services at Minneapolis General Hospital and Glen Lake Sanatorium.
7. Health department staff nurses, including the director, consultant, and supervisors.

8. The educational director and other staff members of Community Health Service.
9. Nurses from the Hennepin County Nursing Service and the Minneapolis Board of Education.
10. Administrators of the city and county welfare departments.
11. The Executive Director of the Survey.
12. The Health Education Consultant assigned to the Survey.
13. State Health Department tuberculosis control and industrial nursing consultants.
14. The Executive Secretary of the Hennepin County Tuberculosis Association.

During the course of this joint meeting, it was agreed that further studies should be given to (1) the delineation of nursing policies; (2) training of the nursing staff in interview techniques and mental hygiene; (3) the development of simple guides for the home visit; and (4) the exchange of information between health and welfare agencies engaged in the Survey.

As a means of orientation, later meetings presented discussions of mental hygiene and rehabilitation of the tuberculous. These meetings were led by a psychiatrist from the Minnesota Psychiatric Institute and a regional supervisor of the Minnesota Department of Education, Division of Vocational Rehabilitation. Another staff meeting held during the pre-survey period, discussed the Survey organization and the role of the nurse in planning and developing the program.

Medical and nursing policies in tuberculosis control were discussed in two more staff meetings. Diagnostic criteria were outlined and methods of nursing follow-up were reviewed. It was decided that nursing follow-up during the Survey was to be limited to cases with positive sputum, signs of cavitation, and pleural effusion. Follow-up of contacts and suspects was to be suspended temporarily in order to permit the most effective use of the limited nursing services.

During May and the ensuing months, a nursing care committee, composed of three staff nurses, a general supervisor, and advisors versed in tuberculosis and communicable disease control administered the nursing program and participated in the activities of the Survey Technical Committee.

At the 14"x17" Clinic

For the most part, the Epidemiological Record (See Appendix) was used as the guide to the interview at the 14"x17" Clinic. Workers were instructed to discuss only those facts related to history of illness, history of contact with infectious disease, and actual X-ray findings. When the nurse observed symptoms of illness, the patient was advised to wait for a 'wet plate' reading and a consultation with a medical officer. The same procedure applied also to the persons who evidence marked anxiety. In this manner, a few persons, one to two per week, were screened out for immediate medical attention following the large-film X-ray.

The nursing interview, planned to average 3-5 minutes per person usually included discussions of:

a. The patient's plans for medical follow-up in the event that the large film indicated further study;
b. The importance of medical care, annual health examinations, and

chest X-rays;

c. The health department plan of follow-up for those with abnormal X-ray findings.

Work Flow

On May 29 (three weeks after the beginning of the Survey), the 14" x17" Clinic began receiving persons for large-film examinations. By June 2, (four weeks later), a regular flow of 100 persons a day was established, which continued until August. Occasionally, this went to 125 patients a day. During one week, when appointments rose to 200 daily, it was necessary to increase the total number of interviewing nurses from five to six in order to cope with the increased workload. The additional nurse was drawn from the health department staff.

By September 2, one-fourth of the 14"x17" Clinic work (approximately 2,000 X-rays) remained to be completed. The reason for this large back-log lay in the fact that in the week preceding the termination of the 70 mm. operation on August 25, the daily 'take' at the units rose to 4,000 or 4,500 so that the number of individuals recalled for 14"x17" X-rays increased correspondingly. By the time the 14"x17" Clinic closed on September 19, there remained 271 persons with pending appointments.

Of the 9,386 persons recalled for large-film screening, 490 or 5.2 percent, did not keep their appointments. These were referred to public health nurses for follow-up home visits.

Appointment Control -- 14"x17" Clinic

A very simple method was employed for maintaining a check on 14"x17" Clinic appointments and follow-up. Each person with positive 70 mm. findings was sent a recall appointment card (See Appendix). If the person failed to report for the appointment, a second recall appointment was mailed. If this second appointment was broken, a nurse was detailed to follow up by telephone until satisfactory disposition could be made. Where telephone follow-up failed to bring results, public health nurses were assigned to make home visits.

CHAPTER VII

THE RECORD SYSTEM AND SURVEY PROCEDURE

Three basic considerations determined the type of record system used in the Minneapolis Chest X-ray Survey. First, it had to be simple, yet at the same time so designed as to provide complete information. Second, it had to be uniform, in order to facilitate its use by a large staff and to render the information collected conducive of analysis. Finally, consideration had to be given to the relationship of the Survey record system to existing record procedures.

The U. S. Public Health Service record forms 1A and 1B, 3, 4, 5, and 6, had been tested in other mass surveys. Consequently, these record forms were adopted for use in the Minneapolis Survey with only minor modifications. Additional form letters were devised locally to direct patients from the screening process through all the stages of diagnostic follow-up, from the 70 mm. X-ray unit to the clinic and private physician (Appendix).

Fifty clerical workers were employed by the Survey organization to operate the record system. Twenty-five of these were detailed to the mobile and portable units to register persons reporting for X-rays. Sixteen were assigned to Survey Headquarters, where eleven helped process Central Office records and five worked in the 14"x17" X-ray Clinic. The remaining clerks were detailed to the Central Records Room of the Health Department and the outpatient department of Glen Lake Sanatorium in order to absorb the increased workload created by the Survey.

The Record System in Operation

When the 70 mm. X-ray units began to screen the population of Minneapolis, the record system went into action as follows: (See Figure 11)

Operation No. 1 - The preparation of the Basic Project Record, USPHS Form 1, by the X-ray unit clerks; both sections of the record, Forms 1A and 1B were partially filled out. The information entered here included film number, name, mailing address, date, home telephone number and age.

Operation No. 2 - The X-ray technician checked the film number for correct sequence, positioned the subject and made the exposure. At the close of each day the technician turned in to the central office all completed Basic Project Records and all rolls of exposed film. A daily production record was attached to the stack of cards, showing location of the unit, and first and last film numbers used on that day.

Operation No. 3 - Films were developed on the day following exposure, labeled and placed in the Film Reading Room.

Operation No. 4 - Films were read by the medical officers assigned to the Survey, and film impressions recorded on the Basic Project Record cards for all films suspicious of disease or technically unsatisfactory. As these cards were marked, they were placed in one stack, while cards for films classified 'negative' were placed, unmarked, in a separate stack; the 'negative' classification was later entered on the cards by record clerks. Readings were indicated as N for negative, U for unsatisfactory, T for tuberculosis, S for suspect tuberculosis, and O for other-than-tuberculous disease.

The interpreted 70 mm. films were stored at the close of the days' work.

Operation Nos. 5 and 6 - Record cards received the following processing:

A. On negative films, which comprised 96.6 percent of all 70 mm. films read, the film impression was entered in the appropriate space on the 1A cards, and name, address, film number and date were verified. Negative Form 1B was meter-stamped and mailed. The 1A card was then stored.

B. On T, S and O films, which totaled 3.39 percent of all project films read, name, film number, and project film impression were transcribed to USPHS Form 4, the Project Control Report. This control sheet provided a check on all persons who were to be recalled for 14"x 17" films. After the appropriate entries were made on Form 4, appointments were made for 14"x17" films, and notification form A (locally designed) was mailed to recall the persons involved for large films. The stub of the project record, USPHS Form 1B was then filed pending the results of the 14"x17" examination. If 14"x17" film findings showed disease, 1B was destroyed; if negative, 1B was used to notify the individual of negative findings, after the date of the 14"x 17" films was entered.

C. Two percent of all project films read were unsatisfactory and required 70 mm. retake films. In these cases, local Form B was sent, directing the persons involved to return to a 70 mm. X-ray unit for another small film.

D. X-ray evidence suggesting cardiac enlargement was found in 0.25 percent of all project films read. These suspecte were not recalled for 14"x17" films, but appropriate entries were made on Form 4 at the same time T, S, and O cases were recorded. The 1A cards were then routed to a public health nurse who made a telephone call to each patient informing him of the need for further study by his physician. During the course of this call, the physician's name was ascertained and noted. The cards were then returned to the record processing room, and local Form D was sent to the private physician. Two days later, Form C, a reminder, was mailed to the patient. The time interval between the mailing of the two reports was intended to permit the physician to receive the report before being called upon by the patient.

Operation No. 7 - The 1A cards on cases negative by 70 mm. examination were stored by film-number sequence. The T, S, and O cards were sent to the 14"x17" Clinic and filed alphabetically pending the return of the patient. Cards on technically unsatisfactory 70 mm. films were filed numerically after the stub portion, Form 1B, had been removed and destroyed; Form 1A was retained for reference and statistical purposes.

In cardiac cases, the stub portion, Form 1B, was destroyed after notification letters had been mailed and Form 1A filed alphabetically.

Operation No. 8 - When the patient returned for the 14"x17" film, the receptionist took Form 1A from the pending file and conducted the person to an interviewer. During the interview, a clerk prepared the statistical section of the Epidemiological Record, Form 3, and referred the patient to a public health nurse who completed the epidemiological section. The patient was then escorted to the X-ray equipment for the

14"x17" film, after which he was given an 'Instructions for You' card, Form E.

When the 14"x17" films were developed, the corresponding Forms 1A and 3 were attached and routed to the reading room.

Operation No. 9 - The 14"x17" films were read by the medical officers, and findings and recommendations recorded on the Epidemiological Record. The films, with corresponding Forms 1A and 3 attached, were then routed to the central record office for further processing.

Operation No. 10 - Suspects by 14"x17" films were sorted into three groups: negative, tuberculous and non-tuberculous. Each group of films was arranged numerically, and the 14"x17" findings recorded on Form 3 were transcribed to Form 1A by a clerk. The X-ray films were then separated from the records and sent to the X-ray vault of Glen Lake Outpatient Department, while the Epidemiological Records were sent to the Central Record Room of the Health Department to be checked against the records of previously-known cases. Appropriate entries were made on USPHS Form 4, Project Control Report, and Form 1A, Basic Project Record was filed numerically (See Operation No. 5 for disposition of Form 1B).

Operation No. 11 - As soon as the Epidemiological Records, Form 3, were returned to the Central Survey Office from the Record Room of the Health Department, they were separated according to whether the patient wished to be referred to the Public Health Clinic or to a private physician. For all patients referred to the Public Health Center, Form 3 was given to a typist who made three copies and scheduled appointments for follow-up study at the Public Health Clinic. Twenty appointments were made for each clinic.

An adjusted version of Form Letter G or J referred the patient to the clinic. The original and duplicate copies of the Epidemiological Record were sent to the clinic with a list of patients' names. This list of names proved a convenient device for noting changes in appointments or failure to keep them.

All Epidemiological Records for patients referred to private physicians were typed in triplicate. The original was sent to the physician with Form Letter F or I; one copy went to Survey X-ray Files; and another was routed to the Central Record Processing Office for ultimate transmittal to the U. S. Public Health Service.

Form Letter G or I, as indicated, was mailed to the patient. The original, hand written copies of the Epidemiological Record, Form 3, were then sent to the Central Record Room's permanent files. Later on, as the physician's copies were returned, completing clinical follow-up, they were attached to the original, inked copies.

CHAPTER VIII

FINANCES

The financial support of the Survey was made possible on a cooperative basis between Minneapolis and the U. S. Public Health Service. Aid from the latter came in the form of equipment, services, and supplies, rather than by direct cash contribution. Within the city itself, however, a Finance Committee appointed by the General Chairman raised the funds to support the city's share of the Survey program.

The Executive Committee and the General Chairman established a budget of $77,600, exclusive of City Health Department personnel, equipment and supplies assigned to the Survey. Grants of funds to support this budget were obtained by the Finance Committee. These funds were turned over to the X-ray Survey Committee repository.

The X-ray Survey Committee recognized that it would be necessary to augment Health Department personnel beyond the period of Survey operations. However, it assumed the responsibility of financing only the initial costs. Funds necessary for follow-up after the closing of Survey operations on September 19, were considered as post-survey needs, and were financed from (a) a surplus of funds from the initial Survey operation, totalling more than $3,600, and (b) an additional grant of $3,041.47 by the Hennepin County Tuberculosis Association.

Full details of Survey costs (exclusive of the cost of services, equipment and supplies, contributed by the Minneapolis Health Department), as well as the sources of funds for use by the Survey operation itself are contained in the following data:

MINNEAPOLIS MASS X-RAY SURVEY

Minneapolis, Minnesota

Minneapolis Community-wide X-ray Survey Fund

Cash contributions:	
Hennepin County Tuberculosis Association	$52,000.
Minnesota Cancer Society	5,000.
Hennepin County American Red Cross	20,000.
Health Action Committee	500.
Columbia Heights Commercial Club	617.07
Total	$78,117.07

COST STATEMENT
MINNEAPOLIS MASS CHEST X-RAY SURVEY
Minneapolis, Minnesota
May 5, 1947 - September 19, 1947*

Item of Expenditure	U.S.P.H.S.	Local Survey Fund	Hennepin County Tuberculosis Association**	Total
Salaries	$ 55,873.03	$ 47,141.45	$ 4,587.47	$ 107,601.95
Travel	974.66			974.66
Depreciation of Equipment	10,348.64		2,222.00	12,570.64
Supplies and Materials	13,041.92	2,110.30		15,152.22
Repairs and Replacements	1,312.80		555.84	1,868.64
Transportation	1,421.81			1,421.81
Educational Materials and Informational Services		6,243.44		6,243.44
Rents and Utilities		5,099.63	300.00	5,399.63
Communication	150.72	4,805.40		4,956.12
Printing		8,075.83		8,075.83
Total	$ 83,123.58	$ 73,476.05	$ 7,665.31	$ 164,264.94***

Total 70mm. Films Taken: 306,020
Total 14"x17" Films Taken: 8,223

* This period covers the operation of 70mm. units from May 5, 1947 - August 25, 1947 and the operation of the 14"x17" Clinic from May 14, 1947 - September 19, 1947.

** Represents services contributed in addition to the cash contribution of $52,000 made to the local Survey fund.

*** Does not include personnel services contributed by Minneapolis Health Department, estimated at $15,000.

CHAPTER IX

RESULTS OF THE SURVEY

In the following pages, results of the Survey are summarized as of January 5, 1948, as outlined:

Table 1. Total Films Taken by Location of Units.

" 2. Analysis of all Films Taken.

" 3. 70mm. Film Impressions.

" 4. Recalls for 14"x17" Confirmatory Film.

" 5. Response of 70mm. Positives Recalled for 14"x17" Films

" 6. 70mm. Vs. 14"x17" Findings.

" 7. 70mm. Vs. 14"x17" Findings (Percentages).

" 8. Summary of Positive 14"x17" Film Findings.

" 9. Disposition of 6,002 Persons with Positive 14"x17" Film Findings.

" 10. Result of Checking 6,002 Persons with Positive 14"x17" Film Findings Against Local Tuberculosis Case Register.

" 11. Reasons for not Responding and Disposition of 903 Persons Given Appointments for 14"x17" Film but not Responding.

" 12. Diagnoses on First 1,500 Persons of 6,002 Referred to Private Physician or Public Clinic.

" 13. Extent of Bacteriological Study on First 648 Persons Diagnosed as Tuberculous.

" 14. Activity and Stage of Disease of First 648 Persons Diagnosed as Tuberculous.

" 15. Disposition of First 98 Active Cases by Stage of Disease.

TABLE 1

Total 70mm. Films Taken by Location of Units

	Number		Percent	
Total		306,020		100.0
Locations Open to General Public:		235,082	100.0	76.8
Neighborhood	157,316		66.9	
Northwestern Bank Building	61,379		26.1	
Downtown	16,387		7.0	
Schools:		32,010	100.0	10.5
High Schools	15,997		50.0	
Univ. of Minnesota	16,013		50.0	
Industry:		38,928		12.7

Total 70mm. Films Made 306,020
Total Unsatisfactory 4,507

TABLE 2

ANALYSIS OF ALL FILMS TAKEN

FOR THE

CITY-WIDE CHEST X-RAY SURVEY

MINNEAPOLIS, MINNESOTA

May 5 - August 25

1947

Total Examinations	301,513														
70mm. Films Positive	3.4	10,238													
* 14"x17" Films Not Made	0.6	18.6	1,905												
14"x17" Films Taken	2.8	81.4		8,333											
14"x17" Films Positive	2.0	58.6		72.0	6,002										
Calcification	0.0	0.0		0.0	0.0	3									
Reinfection Tuberculosis	1.2	35.4		43.5	60.4		3,627								
Minimal							84.8	3,077							
Moderately Advanced							13.3		481						
Far Advanced							1.9			69					
Other Tuberculosis	0.1	1.6		1.9	2.7						159				
Suspected Tuberculosis	0.0	0.6		0.7	1.0							61			
Non-Tuberculous Pathology	0.7	21.0		25.8	35.9								2,152		
Cardiac													7.0	151	
Other Pathology													93.0		2,001

N.B. - All Underlined Figures Represent Whole Numbers;

All Other Figures Represent Percentages.

* See Tables 4 and 11.

TABLE 3

70mm. Film Impressions

	Number	Percent	Percent	Percent
Total Taken	306,020	100.0		
Unsatisfactory	4,507	1.5		
Total Examinations	301,513	98.5	100.0	
Negative	291,275		96.6	
Positive	10,238		3.4	100.0
Definite Tuberculosis	1,378		0.5	13.5
Suspected Tuberculosis	4,599		1.5	44.8
Cardiac	858		0.3	8.4
Other Pathology	3,403		1.1	33.2

TABLE 4

Recalls for 14"x17" Confirmatory Film

	Number
Total 70mm. Positives	10,238
Not Recalled	1,002
Cardiacs	841
Duplicate Positive Findings	65
Persons Referred to Univ. of Minnesota	96
Recalled	9,236

TABLE 5

Response of 70mm. Positives Recalled for a 14"x17"

	Number	Percent
Total Given Appointments	9,236	100.0
Total Responding	8,333	90.2
Total Given One (1) or more Appointments	9,236	100.0
Total Responding to First Appointment	6,691	72.4
Total Given Two (2) or more Appointments	2,545	100.0
Total Responding to Second Appointment	1,137	44.7
Total Given Three (3) or more Appointments	1,408	100.0
Total Responding to Third Appointment	350	24.9
Total Given Four (4) or more Appointments	1,058	100.0
Total Responding to Fourth Appointment	42	4.0
Total Given Five (5) or more Appointments	1,016	100.0
Total Responding to Five or More Appointments	113	11.1

TABLE 6

70mm. Vs. 14"x17" Findings

14"x17" Reading	70mm. Film Impression			
	Totals	Definite Tuberculosis	Suspected Tuberculosis	Other Pathology*
Total 14"x17" Films Taken	8,333	1,195	4,129	3,009
Negative	2,331	17	1,404	910
Calcification	3	0	3	0
Reinfection Tuberculosis	3,627	1,078	2,305	244
Minimal	3,077	742	2,136	199
Moderately Advanced	481	282	163	36
Far Advanced	69	54	6	9
Other Tuberculosis	159	51	54	54
Suspected Tuberculosis	61	5	53	3
Non-tbc. Pathology	2,152	44	310	1,798
Cardiac	151	0	11	140
Other Pathology	2,001	44	299	1,658

*Includes 17 70mm. Cardiacs Recalled by Mistake

TABLE 7

70mm. Vs. 14"x17" Findings (Percentages)

14"x17" Reading	Totals		Definite Tuberculosis		Suspected Tuberculosis		Other Pathology*	
Total 14"x17" Films Taken	100.0		100.0		100.0		100.0	
Negative	28.0		1.4		34.0		30.2	
Calcification	0.1		0.0		0.1		0.0	
Reinfection Tbc.	43.5	100.0	90.2	100.0	55.8	100.0	8.1	100.0
Minimal		84.8		68.8		92.7		81.6
Moderately Advanced		13.3		26.2		7.1		14.8
Far Advanced		1.9		5.0		0.3		3.7
Other Tuberculosis	1.9		4.3		1.3		1.8	
Suspected Tuberculosis	0.7		0.4		1.3		0.1	
Non-tbc. Pathology	25.8	100.0	3.7	100.0	7.5	100.0	59.8	100.0
Cardiac		7.0		0.0		3.5		7.8
Other Pathology		93.0		100.0		96.5		92.2

*Includes 17 persons diagnosed as Cardiacs on 70mm. films, and recalled by mistake.

TABLE 8

Summary of Positive 14"x17" Film Findings

	Number	Percentages	
		Totals	Sub-Totals
Total Positive 14"x17" Films	6,002	100.0	
Calcification	3	0.0	
Reinfection Tuberculosis	3,627	60.4	100.0
Minimal	3,077		84.8
Moderately Advanced	481		13.3
Far Advanced	69		1.9
Other Tuberculosis	159	2.7	
Suspected Tuberculosis	61	1.0	
Non-tbc. Pathology	2,152	35.9	100.0
Cardiac	151		7.0
Other Pathology	2,001		93.0

TABLE 9

Disposition of 6,002 Persons with Positive 14"x17" Film Findings

	Number	Percent
Total.....	6,002	100.0
Referred to Private Physicians.....	4,219	70.3
Referred to Public Health Clinic.....	1,783	29.7

TABLE 10

Result of Checking 6,002 Persons with Positive 14"x17" Film Findings Against Local Tuberculosis Case Register

	Total	14"x17" Read Tuberculous	14"x17" Read Non-tuberculous
Numbers			
Total.....	6,002	3,850	2,152
Not on Register.	5,629	3,497	2,132
On Register.....	373	353	20
Active.....		109	0
Inactive.....		244	20
Percentages			
	Total	14"x17" Read Tuberculous	14"x17" Read Non-tuberculous
Total.....	100.0	100.0	100.0
Not on Register.	93.8	90.8	99.1
On Register.....	6.2	9.2 100.0	0.9 100.0
Active.....		30.9	0.0
Inactive.....		69.1	100.0

TABLE 11

Reasons for not Responding and Disposition of 903 Persons Given Appointment for 14"x17" Film but not Responding

	Number	Percent
Total	903	100.0
Referred to State Health Department	262	29.0
Referred to Private Physicians	351	38.9
Referred to Public Health Clinic	26	2.9
Hospitalized	5	0.6
Deceased	11	1.2
Had other 70mm. Film, negative	44	4.9
Unable to locate	75	8.3
Uncooperative	125	13.8
Unspecified	4	0.4

TABLE 12

Diagnoses on First 1,500 Persons of 6,002 Referred to Private Physician or Public Clinic

	Number	Percent
Total	1,500	100.0
Negative Chest	159	10.6
Diagnosis Tuberculosis	648	43.2
Diagnosis Other Chest Disease	585	39.0
No Diagnosis Made	108	7.2

TABLE 13

Extent of Bacteriological Study on First 648 Persons Diagnosed as Tuberculous

	Number	Percent
Total.....	648	100.0
Studied Bacteriologically.....	428	66.0
Not Studied Bacteriologically...	220	34.0

TABLE 14

Activity and Stage of Disease of First 648 Persons Diagnosed as Tuberculous

Activity	Total		Stage of Disease							
			Minimal		Moderately Advanced		Far Advanced		Other	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Total	648	100.0	463	100.0	121	100.0	23	100.0	41	100.0
Active	98	15.1	39	8.4	49	40.5	9	39.1	1	2.4
Ques. Active	17	2.6	10	2.2	6	5.0	0	0.0	1	2.4
Inactive	533	82.3	414	89.4	66	54.5	14	60.9	39	95.1

TABLE 15

Disposition of First 98 Active Cases by Stage of Disease

	Total	In Sanatorium	At Home
Total	98	55	43
Minimal	39	17	22
Moderately Advanced	49	31	18
Far Advanced	9	7	2
Other	1	0	1

IN PROSPECT

The Survey work will continue in Minneapolis until all suspected chest diseases discovered in the Survey have been followed through to final disposition. Intensified follow-up procedures following the Survey through 1947 and 1948 were made possible by generous financial contributions from the Hennepin County Tuberculosis Association totaling $35,000.00.

There were 8,333 persons who received during the Survey follow-up 14"x17" X-ray pictures. Of this number 6,002 were referred to physicians or the Public Health Center Clinic for medical diagnosis of apparent chest pathology. Of these referred cases, 3,847 were by X-ray interpreted as possible tuberculosis. As of December, 1948, 2,120 cases had been clinically confirmed as tuberculosis. Of this latter number, 261 were reported as active tuberculosis, 1,806 inactive and 53 were undetermined. There were 1,108 with pathology other than tuberculosis among those for whom final diagnosis has been reported. Of the medical diagnosis report forms returned and tabulated, there were over 3,200 persons found to have chest pathology of varying degrees of seriousness.

As a result of the Survey, Minneapolis is now better informed about the health needs of the community. The facilities of the Public Health Center Clinic are being utilized more fully than ever before. Physicians are more alert in diagnosis of tuberculosis and other chest diseases, which together with increased use of clinical facilities should result in an improvement of the quality and quantity of medical care. This in turn, should benefit the tuberculosis case finding program.

This report has been prepared by the Minneapolis Health Department, through the collaboration of Dr. D. C. Gates, Executive Director of the Survey, and Mr. David R. Mendelson, of the Tuberculosis Division, United States Public Health Service.

APPENDIX

LETTERS AND FORMS USED IN THE MINNEAPOLIS COMMUNITY-WIDE CHEST X-RAY SURVEY

U. S. Public Health Service Forms

Page i — Form 1, the Basic Project Record, consisting of Form 1A, the Identification Card and Form 1B, the Negative Notification Report. This is prepared on the X-ray unit at the time the 70 mm. film is taken.

ii — Form 4, the Project Control Report, a daily listing in film number sequence of all cases called back to clinic for 14"x17" celluloid films.

ii — Form 5, the Project Analysis Report, a summary of both 70 mm. and 14"x17" film findings on all persons X-rayed.

ii — Form 6, the Weekly Report of Activities, a daily account by units and by date of the number of films taken at each location.

Local Health Department Forms and Form Letters

Page i — Form A, a combination notification in card form of abnormal 70 mm. film impression and appointment to 14"x17" X-ray clinic.

i — Form B, a postal card notification of unsatisfactory film and instructions for obtaining a second 70 mm. X-ray.

iii — Form C, a letter in card form to patient, confirming telephone conversation with cardiac cases found in 70 mm. reading.

iii — Form C-1, a letter sent to a patient having no phone and whose 70 mm. X-ray indicated a cardiac case.

iii — Form D, a report to the private physician of cardiac cases on findings of 70 mm. readings.

iv — Form E, 'Instructions for You', given to the patient at the time his 14"x17" film is taken. (This card is to be returned to the Survey Headquarters signed by the physician in order to confirm follow-up of tuberculosis and other pathology.)

iv — Form F, a letter to the physician accompanied by an Epidemiological Record, Form 3 (revised from USPHS Form 3 and described below.)

iv — Form 3, the Epidemiological Record, a case history of all persons having 14"x17" films. This form is filled out at the time the 14"x17" film is made. The original typed copy is mailed to the patient's physician for follow-up purposes. A duplicate copy (pink) is prepared for USPHS and another (yellow) for the local health department X-ray file. The original inked copy or work sheet is to be kept on file in the Central Record Room until the physician has returned the typed copy sent to him for follow-up.

Page v Form G, a letter sent to the patient two days after Form F is sent to the physician. This letter informs the patient of abnormal shadows found and asks him to report to his physician.

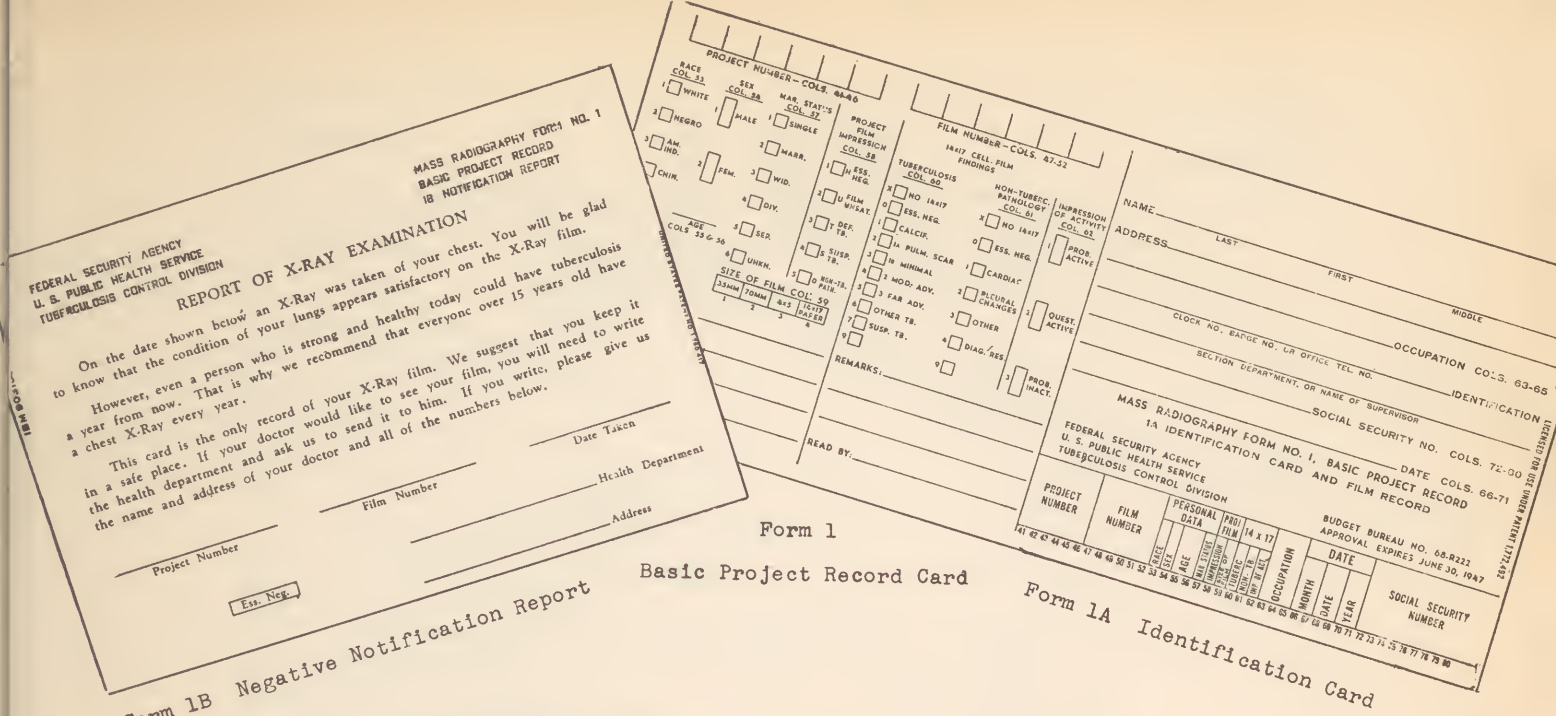
v Form G-1, a letter sent to the patient after a large X-ray has been taken. The letter is sent to those having no private physician and requests them to come to the Public Health Center for physical examination.

v Form G-2, a letter sent to a patient after a large X-ray has been taken. This letter is sent to those who had previously been followed by the Health Department for tuberculosis, and asks them to come to the Health Center.

vi Form H, a follow-up letter on Form G. It is to be used if the patient does not report to his physician for clinical study.

vi Form I, a letter to be sent to the physician regarding previously known cases of tuberculosis. It corresponds to Form Letter F.

vi Form J, a letter to be sent to the patient if his is a previously known case. This letter is used for the same purpose as Form G, that of notification of 14"x17" film findings and a request for follow-up by private physician.



Form 1

Basic Project Record Card

Form 1B Negative Notification Report

Form 1A Identification Card

INSURE YOUR FUTURE WITH A CHEST X-RAY NOW! Film Number

The Minneapolis Mass Chest X-Ray Survey is serving you and your community. You can help by keeping your appointments. Time has already been reserved for you at 328 3rd Ave. S.:

Date _____ at _____ (a.m.) (p.m.)

OR _____ at _____ P.M. ONLY

If for some reason you cannot keep this date, call _____ for a new appointment.

PLEASE BRING THIS CARD WITH YOU!

Front

Dear Friend:

For some reason, technically or otherwise, the chest X-ray you had taken could not be properly interpreted. It is advisable, therefore, that you have another X-ray taken. This will only take a few minutes since arrangements have been made for you to have this X-ray.

On the reverse side of this card is your appointment, and we plan to see you.

Most cordially yours,
F. J. Hill, M.D., M.P.H.
Commissioner of Health
Mpls. City Health Dept.

Back

Form A

Notice of Abnormal Findings and Recall to 14 x 17 Clinic

Project No._____ Date_____

The x-ray which you had taken recently was a technical failure. Another x-ray of your chest should be taken at your earliest convenience. You may go to any x-ray unit to have a new film. Consult your daily paper for location of units. Please present this card at the unit.

F. J. Hill, M.D., M.P.H.
Commissioner of Health

Form B

Postcard Notice of Unsatisfactory Film

Form 9429 b
FEDERAL SECURITY AGENCY
U. S. PUBLIC HEALTH SERVICE
TUBERCULOSIS CONTROL DIVISION

PROJECT CONTROL REPORT
(MASS RADIOGRAPHY FORM 4)

Budget Bureau No. 68-R224
Approval expires June 30, 1947

CITY _____ STATE _____ PROJECT No. _____ DATE _____ SHEET No. _____

NAME (ENTER LAST NAME FIRST)	PROJECT FILM NUMBER	PROJECT FILM IMPRESSION				14" X 17" CELLULOID FILM FINDINGS												INT. BY M. O.	FORM 3 PREP.	14" X 17" CELLULOID FILM NOT MADE	REMARKS
								TUBERCULOSIS							NON-TUBERCULOUS PATHOLOGY						
									REINFECTION TB.												
		T	S	O	U	ESSENTIALLY NEGATIVE	CALCIFICATION	1A	1B	2	3	OTHER TUBERCULOSIS	SUSPECTED TUBERCULOSIS	CARDIAC PATHOLOGY	PLEURAL CHANGES	OTHER PATHOLOGY	DIAGNOSIS RESERVED	YES OR NO	YES OR NO		IF NO FORM 3 OR 14" X 17" CELLULOID FILM, GIVE REASON. IF "OTHER" FINDINGS IN COL. 13 OR 17 PLEASE SPECIFY.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Form 4
Project Control Report

Budget Bureau No. 68-R226
Approval expires June 30, 1947.

Form 9429 d
FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE
Tuberculosis Control Division
June 1946

PROJECT ANALYSIS REPORT
(Mass Radiography Form No. 5)

1. Agency conducting or sponsoring project _____ Project No. _____ Date project started _____ Date project closed _____
2. Number of X-ray unit _____ Type of business or industry _____
3. Establishment surveyed _____
4. Address of establishment _____ From _____ To _____
5. For project operating beyond calendar month, indicate period covered _____ To _____
   Personnel in unit (*If changes have occurred during the project, give dates*): Name
6. Medical officer _____
7. Nurse _____
8. Technician _____
9. Assistant technician _____
10. Record analyst _____
11. Size of films used (*Check which*): 35-mm. ☐ 70-mm. ☐ 4" x 5" ☐ 14" x 17" (Paper) ☐

PROJECT FILM IMPRESSION

TOTAL NUMBER OF FILMS TAKEN	GROUP U (Unsatisfactory films)	TOTAL NUMBER OF PERSONS EXAMINED	GROUP N (Essentially negative)	GROUP T (Definite tuberculosis)	GROUP S (Suspected tuberculosis)	GROUP O (Nontuberculous pathology)
12.						

14- BY 17-INCH CELLULOID FILM FINDINGS

13. TOTAL. (*Entries on this line should be identical with corresponding entries on line above*)	
14. Essentially negative	
Characteristic of:	
15. Calcification	
16. Reinfection tuberculosis	
17. 1 (a) Pulmonary scar	
18. 1 (b) Minimal	
19. 2 Moderately advanced	
20. 3 Far advanced	
21. Other tuberculosis*	
22. Suspected tuberculosis	
23. Nontuberculous pathology	
24. Cardiac pathology	
25. Pleural changes	
26. Other pathology	
27. Diagnosis reserved	
28. 14" x 17" CELLULOID FILM NOT TAKEN	

* Includes nonsanitized primary tuberculosis, pneumothorax, thoracoplasty, and effusion.

Race and sex of group examined (*Check which*): 29. Race: White ☐ Nonwhite ☐ Sex: Male ☐ Female ☐ Mixed ☐

30. Reported by _____ (Name) _____ (Title) Date _____ 16—48841-1

Form 5
Project Analysis Report

Form 9429 e
FEDERAL SECURITY AGENCY
U. S. PUBLIC HEALTH SERVICE
Tuberculosis Control Division
June 1946

WEEKLY REPORT OF ACTIVITIES
(Mass Radiography Form No. 6)

Budget Bureau No. 68-R22
Approval expires June 30,

Year _____ Month _____ Week starting _____ X-Ray Unit No. _____

DAY	DATE	PROJECT No.	NAME OF PROJECT, CITY, AND STATE (If no films taken, indicate reason)	X-RAY TUBES			SCREENING FILM		
				ROT.	STAT.	MANUFAC. TUBE'S No.	FIRST No.	LAST No.	14" x 17" CELL. NUMBER TAKEN
S									
M									

TOTAL (Number of films taken during week) _____

NUMBER OF FORMS AND FILMS SENT TO CENTRAL OFFICE

FORM 2 (10% SAMPLE CARD)	FORM 3 EPID. RECORDS	FORM 4 PROJECT CONTROL REPORT	FORM 4 A FOLLOW-UP REPORT	FORM 5 PROJECT ANALYSIS REPORT	65 MM.	70 MM.	4" x 5"	14" x 17" PAPER	14" x 17" CELLULOID

project will be completed on or about _____
fo. _____ at _____ (Date)
(Name and address of establishment)
(Date)

eport prepared by _____ (Medical officer in charge)

16—48841-1

Form 6
Weekly Report

ear Friend:

This will confirm our telephone conversation about the findings in your small x-ray film. A report of these findings has been sent to the physician you indicated to us.

As you know, an x-ray is only part of a thorough physical examination. You will want to go to your physician, therefore, to determine whether this represents a condition which should have more medical attention or whether it is of no significance.

Most cordially yours,

F. J. Hill, M.D., M.P.H.
Commissioner of Health
Minneapolis Health Department

:bl

Form C
Confirmation of
Telephone Report
of Cardiac Findings
(Discontinued)

Dear Friend:

We have been unable to reach you by telephone to tell you about the results of your small x-ray film. The findings indicate that there is a slight abnormality of your heart shadow on the x-ray and we suggest that you have a complete medical examination. A report which you may take to your physician is attached.

As you know, an x-ray is only part of a thorough physical examination. You will want to go to your physician, therefore, to determine whether this represents a condition which should have more medical attention or whether it is of no significance.

Most cordially yours,

F.

Form C - 1
Cardiac Notice
(Sent to those not reached
by telephone)

P.H.
th
pt.

YO

WHAT YOU CAN SEE

Minneapolis
COMMUNITY-WIDE
CHEST X-RAY SURVEY

UNDER DIRECTION OF MINNEAPOLIS HEALTH DEPARTMENT • 401 CITY HALL • MINNEAPOLIS
CLARE GATES, DR., P. H., CO-ORDINATOR • TELEPHONE MAIN 7571

Patient's Name_____
Project Film No._____

Dear Doctor:

The findings on the 70mm. x-ray taken of your patient in the survey are recorded below:

We are asking the above patient to report to you for further clinical study. After your study, will you kindly report your findings and recommendations as to disposition on the form provided below.

Most cordially yours,

F. J. Hill, M.D., M.P.H.
Commissioner of Health

- -

1. Heart size: Enlarged _____ Not enlarged_____
2. Type of Heart Disease:
   Arteriosclerotic _____ Rheumatic_____ Hypertensive____
   Luetic_____ Other_____ None_____
3. Compensated: Yes____ No____
4. Symptoms: Dyspnea_____ Orthopnea_____ Ankle Edema_____
   Other_____ None_____
5. Has patient a history of heart disease? Yes_____ No_____
6. If so, what type and for how long_____
7. Laboratory date (EKG, 14x17 x-ray, fluoroscopy, Kahn, urine, NPN, etc.)

   _____

   _____
8. Remarks:

(Signature)_____M.D.

Form D
Report of Cardiac Findings
Sent to Private Physician

SPONSORED BY HENNEP N COUNTY TUBERCULOSIS ASSOCIATION • WITH COOPERATION OF UNITED STATES PUBLIC HEALTH SERVICE • MINNESOTA STATE DEPARTMENT OF HEALTH

WASHINGTON

"INSTRUCTIONS FOR YOU" Film No._____

Your name.....
Address.....

1. If your second film is negative you will receive notification immediately.
2. If your second film shows shadows indicating abnormal chest findings, you will receive a letter stating that a report of these findings has been sent to the physician named by you at the time you had your x-ray.
3. Your responsibility:
   a. to visit your physician for interpretation of your x-ray findings as soon as you receive a letter stating that you should do so.
   b. return this card to the City Health Dept. with a report of:
      Date of first visit to your physician.....
      Signature of Physician_____

MINNEAPOLIS MASS CHEST X-RAY SURVEY

Form E
Given to Patient
At 14 x 17 Clinic

Minneapolis
COMMUNITY-WIDE
CHEST X-RAY SURVEY

UNDER DIRECTION OF MINNEAPOLIS HEALTH DEPARTMENT • 401 CITY HALL • MINNEAPOLIS
CLARE GATES, DR., P.H., CO-ORDINATOR • TELEPHONE MAIN 7571

Patient's Name_____
Project Film No._____
14x17 Film No._____

Dear Doctor:

The findings of the 14x17 chest x-ray taken of your patient in the survey are recorded on the attached form No. 3.

We are writing to the above patient, who indicated you as his private physician, to report to you for further clinical study. After your study, will you kindly report your findings and recommendations as to disposition?

If tuberculosis is diagnosed, please fill in the attached form No. 3. If your patient has tuberculosis, this might be a good time to examine his family and other contacts as they are more receptive now than they will be at a later date. If they have already been x-rayed, of course they will have that report.

If diagnosis other than tuberculosis is made, will you please give your studies, final diagnosis, and disposition on lines 25 and 26 of the attached form or on a separate sheet?

Thank you for your kind cooperation.

Most cordially yours,

Attachment

Form F
Letter of Referral
to Private Physician

FORM 3

Date..... Case No.....

1. Name..... (Last, First, Middle, (Maiden))
2. Address..... Census Tract..... Phone.....
3. Birthdate..... (Month, Day, Year) Age..... Sex..... Race..... Marital Stotus.....
4. Consort's nome.....
5. State or country of birth..... State or country of longest residence..... No. of years.....
6. Present work..... No. of yrs..... Former work..... No. of yrs.....
7. Residence city or county since..... (Year) Previous oddress.....
8. Person most likely to locote you in case you move?.....
   Rel. to potient..... Address..... Phone.....
9. Hove you ever had TB? No..... Yes..... Yeor..... Treatment: None..... Pr. Phys..... Cl..... San.....
10. Did anyone in your home die of TB? No..... Yes..... When..... Relotionship.....
11. Hove you hod recent illness? No..... Yes..... Specify.....
    Temp: No..... Yes..... Amt..... Wt. Loss: No..... Yes..... Amt..... Fotigue: No..... Yes.....
12. Did you ever hove chest x-ray token? No..... Yes..... Date last x-roy.....
    Why token?..... Where?.....
13. Physicion's nome..... Address.....
14. When was the last time you sow your physician?.....
15. Remorks.....
16. CONTACTS

	Nome (Address if different from cose)	Relation	Age	Sex	TB History	Date of X-Ray
1.						
2.						
3.						
4.						
5.						

17. 70 mm. Reoding
    Film No.....
    Dote.....
    N U T S O
    14 x 17 Reoding Film No..... Dote.....
    Tuberculosis..... Cardioc..... Other.....
18. Stoge of disease: M..... MA..... FA..... Other.....
    (M. D.'s Report Over)

Form 3
Epidemiological Record
Face

19. Impression of activity: Active..... Inactive..... Questionable.....
20. Source of first report.....

DOCTOR'S RECORD ONLY

21. *Tubercle Bacilli:* Present..... Absent..... Dote.....
    Sputum: Smear..... Conc..... Culture..... No Sputum.....
    Gastric Culture..... No examination mode.....
22. *Tuberculin Test:* Date opplied..... Date reod.....
    O. T. 1st Dose..... Indurotion in mm..... 2nd Dose..... Induration in mm.....
    P. P. D. 1st Dose..... Indurotion in mm..... 2nd Dose..... Induration in mm.....
23. *Symptoms:* Fever: Yes..... No..... Fatigue: Yes..... No.....
    Weight Loss: Yes..... No..... Others: Yes..... No.....
24. Is there ony evidence for extra pulmonary tuberculosis? Specify.....
25. If non-tuberculosis, what was final diagnosis?.....
26. What disposition has been made of potient?.....
27. Do you wish PHN supervision? Yes..... No..... If none, state reason.....
28. Diagnosis..... Signoture.....
29. Remarks:

Form 3
Epidemiological Record
Back

YOU CAN FIGHT WHAT YOU CAN SEE

Minneapolis
COMMUNITY-WIDE
CHEST X-RAY SURVEY

UNDER DIRECTION OF MINNEAPOLIS HEALTH DEPARTMENT • 401 CITY HALL • MINNEAPOLIS
CLARE GATES, DR., P. H., CO-ORDINATOR • TELEPHONE MAIN 7571

Dear Friend:

In reading your chest x-ray, we find an abnormal shadow. This may be of no significance at all. From the x-ray alone we cannot tell whether this represents an old arrested condition or whether it is active at the present time.

As you already know, an x-ray is only one part of a thorough examination. Therefore, you should report to the physician whom you indicated at your last x-ray visit. Your x-ray findings have already been reported to him.

Please have your "Instructions for You" card signed by your physician and return it to this office.

Most cordially yours,

F. J. Hill, M.D., M.P.H.
Commissioner of Health

Form G
Notice of
Abnormal Findings
(Patients having
Private Physicians)

X-RAY
Okay!
CHEST X-RAY
ANYONE 15 OR OVER

Minneapolis
COMMUNITY-WIDE
CHEST X-RAY SURVEY

NDER DIRECTION OF MINNEAPOLIS HEALTH DEPARTMENT • 240 SO. FOURTH ST. • MINNEAPOLIS
. J. ARNOLD, GENERAL CHAIRMAN • CLARE GATES, DR., P. H., EXECUTIVE DIRECTOR • TEL. MA. 7571

ar Friend:

reading your chest x-ray, we find an abnormal shadow. This y be of no significance at all. From the x-ray alone we cannot ll whether this represents an old arrested condition or whether is active at the present time.

you already know, an x-ray is only one part of a thorough amination. Therefore, you should report to the Public Health linic, at 240 So. Fourth St., as was decided at the time of ur chest x-ray. Your x-ray findings have already been reported the Public Health Clinic, and will be available when you re- rt for your appointment.

ease bring your appointment slip and your "Instructions for u" card to the clinic.

Most cordially yours,

F. J. Hill, M.D., M.P.H.
Commissioner of Health

Form G - 1
Abnormal Findings
(Patients having
no Private Physicians)

OU
SEE

Minneapolis
COMMUNITY-WIDE
CHEST X-RAY SURVEY

UNDER DIRECTION OF MINNEAPOLIS HEALTH DEPARTMENT • 401 CITY HALL • MINNEAPOLIS
CLARE GATES, DR., P. H., CO-ORDINATOR • TELEPHONE MAIN 7571

Dear Friend:

In reading your chest x-ray we find an abnormal shadow. As you know, your condition has been followed by the Health Department for some time as a case of tuberculosis.

As you also know, an x-ray is only one part of a thorough examination. The abnormal shadow may just be a scar of your healing or healed tuberculosis. Therefore, if you have not had an examination recently, we suggest that you report to the Public Health Clinic and discuss with a physician whether you will need to be examined at this time. Your x-ray findings have been reported to the Public Health Clinic and will be available when you report for your appointment.

Please bring your appointment slip and your "Instructions to You" card to the clinic.

Most cordially yours,

F. J. Hill, M.D., M.P.H.
Commissioner of Health

Form G - 2
Letter of Referral
to Public Health Clinic
(Previously Known Tuberculosis)

V

Minneapolis

COMMUNITY-WIDE

CHEST X-RAY SURVEY

UNDER OIRECTION OF MINNEAPOLIS HEALTH DEPARTMENT • 240 SO. FOURTH ST. • MINNEAPOLIS
O. J. ARNOLD, GENERAL CHAIRMAN • CLARE GATES, OR., P. H., EXECUTIVE OIRECTOR • TEL. MA. 7571

Dear Friend:

In reading your chest x-ray we find an abnormal shadow. From the x-ray alone, we cannot tell whether this represents old healed disease, or whether it is active at the present time.

You may never have been sick a day in your life. You may feel in perfect health. Don't let that trick you into delaying further study. Many diseases of the chest masquerade without symptoms such as fever, cough, fatigue, loss of weight, loss of appetite, and others. That is why they are treacherous. Once you have been x-rayed and know they are present, you have won the first and most important round in the fight against them. Now you must carry through until you know for sure whether it is healed or active disease.

As you already know, an x-ray is only one part of a thorough examination. Therefore, you should report to the physician whom you indicated at your last x-ray visit. Your x-ray findings have already been reported to him. Please have your "Instructions to You" card signed by your physician and return it to this office.

Most cordially yours,

Form H
Follow-Up Letter

GHT
YOU
SEE

Minneapolis

COMMUNITY-WIOE

CHEST X-RAY SURVEY

UNDER OIRECTION OF MINNEAPOLIS HEALTH OEPARTMENT • 401 CITY HALL • MINNEAPOLIS
CLARE GATES, OR., P. H., CO-OROINATOR • TELEPHONE MAIN 7571

Patient's Name_____
Project Film No._____
14x17 Film No._____

Dear Doctor:

The findings of the 14x17 chest x-ray taken of your patient in the survey are recorded on the attached form No. 3.

We are writing to the above-named patient, who indicated you as his private physician. This patient was asked to report to you for further clinical study unless a recent follow-up examination was made. After your study, will you kindly report your findings and recommendations as to disposition?

As you know, our public health records indicate that this patient is a registered case of tuberculosis. We are merely suggesting that he return to you for an evaluation of your clinical studies. Of course, if there has been an appointment with you recently, it may be unnecessary to have another, depending on the correlation of the attached x-ray findings with your clinical information. We would appreciate a record of your decision on lines 21 through 29 on the enclosed form.

Thank you for your cooperation.

Most cordially yours,

F. J. Hill, M.D., M.P.H.
Commissioner of Health

Attachment

Form I
Notice to Private Physician
(Previously Known Tuberculosis)

Minneapolis

COMMUNITY-WIOE

CHEST X-RAY SURVEY

UNDER OIRECTION OF MINNEAPOLIS HEALTH DEPARTMENT • 240 SO. FOURTH ST. • MINNEAPOLIS
O. J. ARNOLO, GENERAL CHAIRMAN • CLARE GATES, OR., P. H., EXECUTIVE OIRECTOR • TEL. MA. 7571

Dear Friend:

In reading your chest x-ray we find an abnormal shadow. As you know, your condition has been followed by the Health Department for some time as a case of tuberculosis.

As you also know, an x-ray is only one part of a thorough examination. The abnormal shadow may just be a scar of your healing or healed tuberculosis. Therefore, if you have not had an examination recently, we suggest that you report to your physician and discuss with him whether you will need to see him at this time. Your x-ray findings have been reported to him.

If you see him, have your "Instructions to You" card signed and return it to this office. If your physician decides that an appointment is not necessary now, please mail your card directly to the Health Department.

Most cordially yours,

F. J. Hill, M.D., M.P.H.
Commissioner of Health

Form J
Letter of Referral
to Private Physician
(Previously Known Tuberculosis)